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Rail-Road News.

Terre Haute and Indianapolis Railroad.

The entire amount or iron intended for this road has arrived at New Orleans, and a large part of it is now on its way from there to Indianapolis and Terre Haute. The whole line of the road is graded, and it is expected that, with a strong force on the work this summer, it will be completed by the first of December. The bridge across the White river, at Indianapolis, which is a fine piece of masonry, will be finished in a few months. In order to complete the abutments there were only about three hundred yards of stone to lay.

Lake Shore Railroad.

The Cleveland Herald says that this link, which is to connect that city with the New York and Erie Railroad to Dunkirk, is being pushed forward with vigor. The entire route between Cleveland and Painesville will be prepared for the rails by the middle of June, and be in a running order by the 1st of August. The section of work from the last named point to the Pennsylvania line is said to be in very efficient hands. It is expected to be ready for the laying down of the iron in the fall, and by January the first of the whole extent of the road will be opened.

Progress of the Pennsylvania Railroad.

The Greensburg Republican of Friday, April 11th says:—

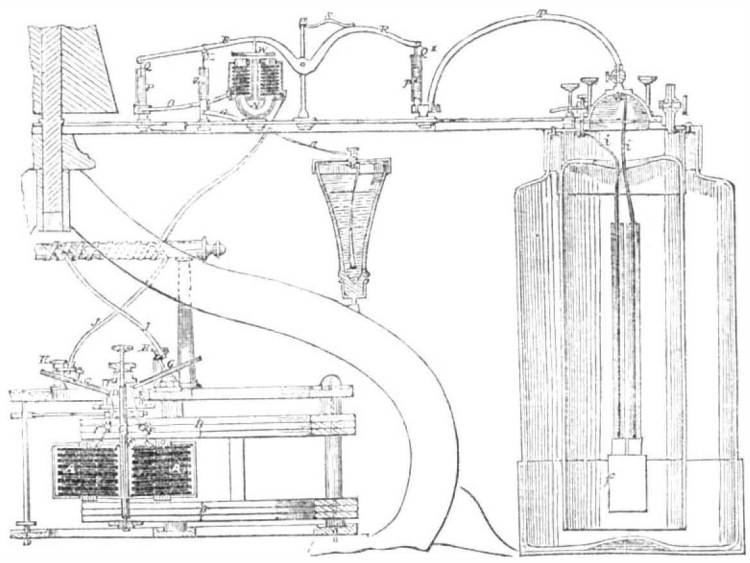
The work on the Central R. R. in this vicinity, is pushed forward with considerable energy—a large number of hands are employed, and the heavy work appears to be rapidly progressing. Mr. R. Mc'Grann has commenced the tunnel, at Barclay's summit, and is now, we understand, about 30 or 40 feet under the ground—the energy and perseverance of this gentleman will complete this tunnel in three months hence. The heavy sections east of this place are progressing rapidly towards completion.

We notice that the arrangement for some time contemplated by the junction of the railroads at Macon, Geo., has been perfected. The terms have been arranged by the City Council of Macon and the Central railroad, a great majority of the citizens of Macon voting favorably to the object. This is an additional evidence of the determination of the Georgians. This state is making wonderful progress in internal enterprise.

A beautiful clock, from Boston, valued at $6,000, has just been put up in the new St. Lawrence Hall, Toronto, Canada. The pendulum is ten feet long, the ball fifty pounds weight. The striking force is seven hundred pounds.

Our friends at Halifax will now shout "On, Stanley on," as he is favorable to the Quebec Railroad.

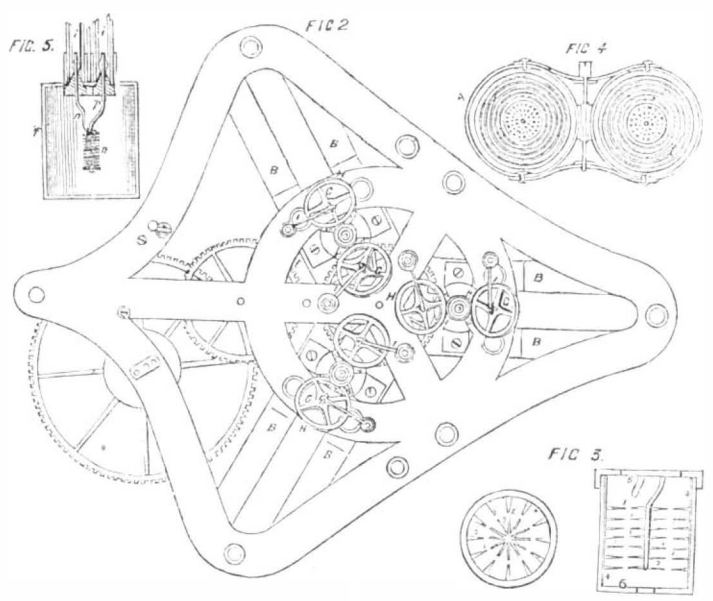
PAINE'S LIGHT---THE PATENT.---Figure 1.



This *Light* was patented in England on the 12th of June, 1850, but has only been recently enrolled. We had seen the drawings and descriptions of it in the London Mechanics' Magazine and the Patent Journal, but we waited for "Newton's Repertory of Inventions" for April, as the patent was secured in the name of Mr. Alfred V. Newton, and it was reasonable to suppose that nothing could be left obscure, as $500 was paid for the fee alone; all therefore may be set down as correct.

Fig. 1 is a vertical section of an elevation. Fig. 2 is a plan view. Fig. 3 is a vertical and plan section of an electrode. Fig. 4 is a plan of the novel helices of the magnets. Fig. 5 a large vertical section of a peculiar electrode. The same letters of reference indicate like parts. A A are two helices, the cores of which may be formed of soft iron, or tubing filled with water; *t t* are the coils made hollow and containing water. They are connected at *k*, fig. 1. A rotary motion is given to these helices by clock-work which we have not fully exhibited—this being an immaterial consideration. The helices are mounted to turn upon a spindle between the poles of a pair of permanent magnets, B B. D is an insulating cap on the head of the spindle; it carries twe metallic rings, one placed around its vertical edge, E, and the other around its top, E′, and insulated from one another. The termini, F F, of the helical coils, A A, are attached one to the ring, E, the other to E′. The small rod that connects these two rings on the spindle head, D, with the hollow coils, should be split its entire length to convey the fluid from the hollow coils towards the ring and allow the electricity to enter the water. The dischargers which press against these rings are

Figure 2.



made as follows: G, (there are two) fig. 2, is a wheel with its periphery covered with a non-conducting substance except at one point, H, which is a conductor. This wheel is made to press by a spring arm, I, against the ring, E, on the spindle head. The stud, K, fig. 1 which supports the spring arm is isolated, and the conducting wire, J, starts from the arm, I. By this arrangement no discharge from the helices can take place until the conducting point, H, on the wheel, G, comes in contact with the ring, E. According to the relative diameters of the wheels, G G, and the rings, E E′, so will be the amount of fluid accumulated between the discharges.

In fig. 5, *n*, is a platinum wire soldered to one of the conductors, *i i*, its other end is wound into a coil, making a cylinder. Into this coil the positive wire, *p*, is inserted. The lower end of this wire is soldered to a metallic button at the lower end of the negative coil. "This arrangement may be reversed when opposite effects are desired." The electrode is enclosed in a cylindrical casing, *f*, being a non-conductor, the upper end of which is pierced with small holes to allow the escape of the gases evolved. There is a small hole in its bottom to allow water to enter therein from a tank. Another electrode may be made by letting the wire down into the water vessel about one-third its depth, and terminating in a horizontal copper plate, in which are inserted a number of platinum wires extending downwards into the centre of a number of platinum coils attached to the bottom of the cell. Each coil must be covered with some non-conducting substance. In fig. 3, the electrode shown is constructed upon the principle of conveying the currents on large free conductors terminating in a number of radial points, 1 1,—the negative pole, 2, or pole points radiating from a centre around the conductor's terminus, and the positive pole points, 3, converging from the inside of the cell, 4. When the positive pole enters the cell, the negative is attached to its inside. The casing of the electrode must be covered on the outside with a non-conducting substance. The top, 5, is perforated, and its bottom, 6, has an aperture of about 1-6 its diameter. The conductors are insulated by passing them though glass tubes. The *electrode*, *f*, is the end of the conducting wire, and the cell in fig. 1 is where water is decomposed. The water to be decomposed must be boiled, to expel the atmospheric air.

In fig. 1 the conductors, J, are connected with the helices around an electro magnet, N, and then pass along a conductor, O, to a mercurial cylinder, P. Q, is a platinum bar pendant from the beam, R, and dipping into the mercury. At the opposite end of this beam is a similar arrangement and contrivance. From the cylinder, P,' proceeds the conductor, T, to the electrodes in the water to be decomposed, W is an armature attached to the beam, R, and dipping into the mercury. At the opposite end of this beam, is a similar arrangement and contrivances. There is a continual electric force acting by the armature, W, on the beam, R. This force is graduated by a spring, S. When the power of the magnet overcomes that of the spring, S, the platinum bar, Q′, is drawn out, (like the one, Q), from the mercury, and the circuit with the electrode is broken. To prevent the mercury rising, after Q′ is drawn out, a cylinder, Z, is provided and filled with mercury, with a bar, X, dipping into it. The mercury is here at such a height, that before Q′ leaves its bath, the current passes into Z, and passes by the wire, *a*, to the earth.

The hydrogen evolved from the water in the cell of the electrode, is carried quickly away by a tube to a vessel containing turpentine; [this is not shown in any of the drawings—a great defect in the patent]; and to the end of the tube that dips into the turpentine, there is a tube wick of an argand burner tied; this is to prolong the contact of the gas with the turpentine. If the end of the tube is perforated, it is said to answer as well. All the pipes must be electrical *non-conducting* inside. This process makes the gas luminiferous. The column of turpentine should be considerable to prevent the gas passing too fast through it.

The claims for this invention are, first,—the use of helices furnished with hollow helical coils to be filled with water or other electric absorbent. Second,—the construction and use of electrodes as described. Third,—applying electricity to the decomposition of fluids by pulsation. Fourth,—the construction and use of a governor for regulating the electric currents. Fifth,—the mode of catalysing hydrogen gas by passing it through spirits of turpentine, or other hydro-carbon, at common temperatures. Sixth,—the use of non-conducting pipes and insulated gasometers for conveying and receiving the gases.

More remarks on this subject will appear next week, but the full description and sense of the patent is here given, and in the meantime we leave the specification to the reflections of our readers.

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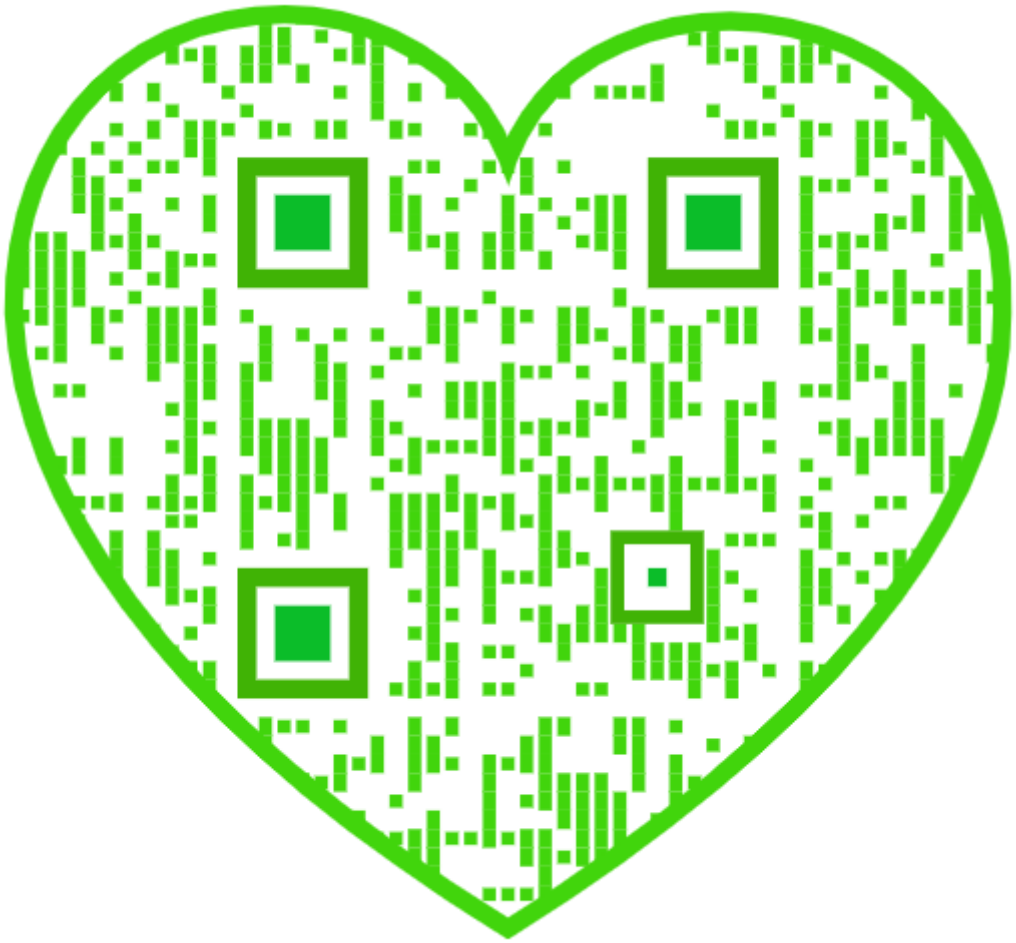

Miscellaneous.

Foreign Correspondence.

LONDON, April 4th, 1851.

An entertainment given to our countrymen on the 26th of last month, at Southampton, by the Mayor and Common Council, was a splendid affair. The person to whom the banquet was more immediately given, was the U. S. Consul, J. R. Crosky; Captain Sands, of the St. Lawrence, together with the other officers of the vessel, was there, and they it was who drew out this demonstration on the part of the magistrates of that place. Our countrymen acquitted themselves handsomely in their speeches. Southampton is the place from which the pilgrim fathers sailed for America, in the May Flower, on the 5th of Aug., 1620, only 230 years ago. What a change! The little handful of religious, self-expatriated patriots has grown into a mighty nation, and it now sends a leviathan of the deep to represent the power, genius, and progress of America.

Our countrymen, I believe, will be treated with consideration at the Exhibition, and everything will be done that can be, to smooth asperities. The Queen and Prince Albert have visited the Exhibition Building, and it is stated that the celebrated diamond "Koh-i-noor," (Mountain of Light), which figured at one time in the crowns of the kings of Persia and Mogul, but which is now the property of the Queen of England, and the largest diamond in the world, is to be exhibited, so that all the world may see how the spoils of India are made to garnish the brow of the Island Queen.

In machinery, England will show to advantage. Machinery will be exhibited to show the whole process of cotton manufacture. Nasmyth will exhibit a splendid Steam Hammer. Huge marine, stationary, and locomotive engines are now fitting up—one engine of 700 horse-power, from the old firm of Bolton and Watt. A press is fitting up by Applegath as a rival to the Hoe Press.

The British department is farthest advanced. The manufactured goods will make the greatest display. They are now arranged as follows:—

As regards cotton manufactures, the towns which exhibit to the largest extent are—London occupying 1,652; Glasgow, 1,648; Manchester, 1,431 feet; and Bolton and Carlisle each occupying about 1,000 square feet. In the woolen and worsted manufactures the town of Galashiels is the largest contributor, occupying 2,016 feet of hanging space. The towns next in order are Stroud, Elgin, Kendal, Stirling, Paisley, the Metropolis, and Oxford. The arrangements for the display of the Galashiels tartans are of a superior character. In the class of silk manufactures, the Metropolis contributes the largest amount. Manchester also sends very largely, as does Macclesfield. The show of ribbons from Coventry will be on a very extensive scale. The class of shawls has been added to the silk class, the space required for Paisely shawls being 11,030 feet; for those of the Metropolis 5,788 feet. In the flax and hemp class Belfast is the largest contributor, the next in order being Leeds, the Metropolis, Dunfermline, Barnsley, Dundee, and Bridport. The cities of Glasgow and Dublin furnish the largest proportions of exhibitors in the class of mixed fabrics. Of printed fabrics, Manchester furnishes sufficient to occupy 7,276, Glasgow 5,152, and the Metropolis 4,108 feet. The printed fabrics will be generally of the usual character of British prints. The largest portion of space in the clothing class is devoted to London, the space occupied being 1,700 feet. Leicester and Nottingham are the next largest contributors.

Among these it will be seen that the north of the island (Scotland) figures considerably. Four places occupy a space of 29,846 square feet. The shawls of Paisely are splendid. They will, it is supposed surpass the cashmere, the French, and German. EXCELSIOR.

GLASGOW, April 3, 1851.

Our political condition, here, is likely to be changed during the current year: I expect that the next general election will occur in August or September, and that Lord Stanley's party will have a majority. This would make much difference to your farmers, as 5s. per quarter would be placed on foreign wheat, and 3s. or 3s. 6d. per barrel on flour. Colonial would be continued free, or at present rates; but that is the minimum on flour or wheat. I may mention that Lord Stanley is pledged to complete the Halifax and Quebec Railway, —and no doubt exists that it will be done if Lord Stanley becomes Premier.

An unfortunate dispute existed with the committee of the American Exhibitors, of which I cannot tell you the particulars, as these gentlemen refused the press admission to their meetings. I regret that course: parties acquainted with this country know that everything of this kind is managed through the Press. It is doubtful, on subjects of the nature involved, whether, in any country, the opinion of the journals does more to form public opinion than here. The American exhibitors, so far as I know, fear that if their articles are shown, and not patented, they will be pirated, in apparent forgetfulness that, although they should not be exhibited, yet they will be copied, if they are sold in the United States, and will repay a copyist. Our patent laws are barbarous. The tax on genius, like a tax on knowledge, is ignominy. But the exhibition does not alter the case in any way.

We had a very bad accident at the Nitshill colliery here, 14 days since, and 65 lives were lost. The works were the deepest in Scotland and deemed the most perfect. A model of them was to be sent to the Great Exhibition to show the mode of ventilating. It will probably not now be sent. The cause is unknown.

A boiler explosion, at Johnstone, a few days afterwards, led to the death of 6 individuals. Boilers, I fear, are often not examined with sufficient care. These cases will be investigated by the authorities, as are all such accidents and occurrences now.

We have here an Accident Insurance Co., which insures against damage or death by accident. An ordinary individual, for £1 annually, insures £1,000. Dangerous professions, such as mining, railway work, nautical, &c., are insured either individually or the whole of the men on a work, or on a ship collectively, by special agreement, but at low figures.

I see a number of articles in the American press regarding the iron trade of this country and the wages paid. Iron is deplorably low at present, and I should think that the masters generally lose money by the business; but a prevalent error runs through all these articles as to wages, especially if you reckon hours. Colliers and miners seldom work long hours or more than five days; and I don't suppose that 75 cts., daily, which I see is deemed, by your writers, much above our rate, would be considered good wages here for 60 hours, weekly. Indeed, I am quite confident that for 60 to 66 hours' work, weekly, it would not be taken. Iron is cheap, here, because blackband ore and coal, and lime are found together. * *.

Immense Engineering Works.

From the Glasgow North British Mail we learn that there are at Mr. Napier's engineering works, two steam cylinders recently cast, which are for the new Cunard steamers, of larger dimensions than any hitherto made in this country or elsewhere. The diameter inside is 103¾ inches, and the length of stroke about ten feet. The largest hitherto fitted up in the steamers of this celebrated line was ninety-six inches, which is also the size of those on board the Collins' line of American steamers. The largest slotting machine in existence is being fitted up at Lancefield works, by Mr. Robert Napier. Some idea of the immense proportions of this huge mechanism may be formed, when it is stated that the castings forming the machine weigh about 100 tons. It is intended for cutting vertical grooves in large wheels, shafts, &c., and provision is made for screw propeller shafts of the largest size "on end," to have the requisite grooves cut internally or on the surface. When a single tool for performing apparently a very simple operation weighs 100 tons, the immense magnitude of the machinery prepared by it may be imagined. The vertical motion of the cutter is given in the ordinary way by means of a crank motion overhead.

Spontaneous Combustion---Fortunate Escape.

We have been furnished with the following facts:—"The carelessness of shippers in not accurately describing their goods often causes much annoyance and not unfrequently serious accidents. One of the most providential escapes that we have ever witnessed, occurred on Saturday last, in this place. A house in New York had shipped on board the schr. Empire, Captain Bunker, a box of oil clothing, to Mr. John Tatsapaugh, which the bills of lading described as merchandise. It was consequently stowed in the hold, and upon the top was placed seventeen kegs of gunpowder, and around it some three hundred more. The Empire cleared at New York on Monday afternoon, 1st instant, and arrived at this port on Friday, making the passage in five days. Upon opening the box it was completely charred through, and the box much scorched, from spontaneous combustion! Had the box remained in the hold a few hours longer, it is probable that a fearful explosion would have been the consequence."—[Alexandria Gazette.

[It is well known to scientific men that there is great danger in stowing away goods of any kind, which have been prepared with grease or oil. If merchants would devote a little more time in acquiring scientific knowledge, such as taking a useful paper, reading books &c., they would be great gainers. Every person who uses a saucepan or kettle, should know something about chemistry.—There is an old saying "a little knowledge is a dangerous thing." This is sheer nonsense; knowledge is power, and a man is powerful just in proportion to the amount of knowledge he possesses. A little knowledge, however little, is better than none.

Deficiency of Weight in Georgia Cotton.

The Savannah Republican has the following explanation of deficiencies in the weight of cotton shipped from that port:—

The Liverpool correspondents of Messrs. A. Low & Co. have often complained of a material deficiency in weight of occasional bales of cotton shipped to Liverpool, and of the lacerated state of the bagging. The day before yesterday, after some careful investigations, the cause was detected. It appears that white and black stevedores, on board the vessel loading below, have been in the habit of secreting cotton in the mattresses on which they sleep. They take them down empty, and bring them up full when the ships are loaded.

How long this system has been carried on we do not know; but it is certain that it has been practiced to a considerable extent. Sea Island cotton is preferred, as might be supposed, when it can be had, both for its value and on account of the ease with which the bags can be opened. We saw six mattresses yesterday which had been thus packed with cotton. All the cotton in them might weigh one hundred and fifty pounds. The only one which we examined was rather expensively made up with an excellent quality of Sea Islands.

This stealing process is a simple and easy way of getting rich, but we presume that those who follow it will be compelled henceforth to try some other method. We understand that a legal investigation will be had. There is no knowing the extent to which this thievery has been carried on.

It is probable that from $15,000 to $20,000 worth of cotton may have been stolen this season. There is no doubt that every ship loaded for Liverpool this year, has been robbed; and this explains why so many cargoes delivered this season in Liverpool, have fallen short. In many instances several bales of cotton have been missing.

Tea Seed.

An agency has just been established in Charleston, S. C., for the sale of tea plants and seeds, sent direct from China. The seed is of the size and color of a hazelnut, and contains an oily kernel.

Pacific Railway.

The St Louis Republican publishes the reports of the Directors of the Pacific Railroad Company, made at its meeting on the 31st of March.

Since the organization of the Company, in March of the previous year, instrumental surveys have been made of three routes to the Gasconade river, all of which are practicable; but the line has been located for only about forty miles, it being unadvisable to decide upon the route until another attempt is made to obtain of Congress a donation of land towards the construction of the road. The portion located is estimated at about $1,000,000, including lands for building at St. Louis, land damages, superstructure, building machinery, and cars.

The amount of private subscriptions to the stock thus far is $544,100, and by cities and counties $514,000—making a total of $1,158,-100, leaving $341,900 to be obtained to secure the issue of bonds in its favor by the State. The law for that purpose, as it passed the Legislature, provided that when $1,500,000 of the Company's stock had been subscribed for, the Governor should issue and deliver to the Company $50,000 of the bonds of the State, running twenty years, and bearing six per cent. interest for every $50,000, collected and expended of its own money, in the actual construction of the road. The amount of these bonds is not to exceed $2,000,000 and as security to the State for the payment of the annual interest and the ultimate redemption of the principal of these bonds, the Company are to mortgage their road and its appurtenances to the State from time to time as the bonds are issued and accepted by the Company.

Suspension Bridges.

A wire suspension bridge is now in course of erection over the Kentucky river as part of the Louisville and Frankfort Railroad. The length of the cables is 585 feet each, the height of the towers 75 feet.

Mr. Serrell, engineer of the Lewiston suspension bridge has made an examination of the site fer a suspension bridge at Black Rock, near Buffalo, over the Niagara river.

The space between the two towers would be 1,800 feet. This would be the longest suspension bridge in the world. It is stated that the cost would only be $250,000.—This would be a trying affair.

Novel Application of Mechanics.

Mr. Alfred Smee has announced that he has contrived a piece of mechanism of much novelty; and he states, that by it he can show the relation of any number of facts on principles inductively and deductively, and thus performs mechanically what has hitherto been thought to be the province of the mind alone. For the action of the machine he so arranges the words, that every word forms a half of the meaning of the word above it, and comprises the meaning of two words below it. By these means, he obtains an arrangement of words having the properties of a geometrical series. When the words are expressed in their proper relations upon the machine, which is constructed upon the same geometrical plan with the logical readings of all, some, none, the bearing of any number of actions on the machine is indicated, and the conclusion can be read off by inspection.

Singular Old Coin.

The editor of the Milford (Del.) Beacon, was shown, a few days ago, a coin—a composition of copper and brass—found on the farm of Mr. Ira Hammond, about two miles from that place. It is over 600 years old, bearing, date 1178; on one side is a crown, and upon the other the words "Josephus, I D J-PO RT-ET-AL G-REX," very legible, and the work well executed. This coin is about two hundred years older than the discovery of America, and the question very naturally arises, where did it come from?

Daguerreotyping the Moon.

Some very ingenious daguerreotypes of the moon, as it appears through the Cambridge telescope, have been made by Mr. Whipple, of Boston. In those views the volcanic mountains may be distinctly traced, with the deep valleys between, and the distant plains.

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Extraordinary Case---Trial of Manslaughter in Treating for Burning.

One of the most extraordinary trials that we ever heard of took place in Swansea, Wales, (Britain) on the first of March. The defendant was Charles Henry Ackerly, a returned Lieut. of the British Navy, a man of wealth, and related to some of the noble aristocrats of England. There had been an explosion of a coal mine whereby a number of men were severely burned, and one of them named Mathew Tingle came to his death by the treatment of the defendant. On the 12th of last December, he went to the house at Aberdare Valley, where Tingle was, and said he was authorized to treat the sufferer medically, Tingle was lying on a bed, covered with plaster, which, by his directions, was removed, in this manner exposing the raw surface of the burns. He then moved the arms and legs of the sufferer violently about. He placed a lighted lamp under the man's nostrils, and thrust a feather down his throat. Shortly afterwards the man died. For this he was indicted, and he acted as his own counsel, and made a most singular defence, one which is a scientific curiosity, of the most remarkable kind.

The prisoner, after producing and arranging several folio and quarto volumes, apparently of some antiquity, entered on his defence, of which the following is a brief outline. He spoke for nearly an hour with great readiness and fluency, giving evidence throughout of an enthusiastic belief in the virtue of his lamp, and the originality and usefullness of his medical discoveries. "Persons who, like myself, introduce new systems and discoveries in philosophy, systems totally opposed to the generally received opinions, must expect to endure the position in which I am now placed; but it is for the benefit of future generations that such trials should be endured by inventors. I do not shrink from mine; I stand here fearlessly to abide the result. The medical man admits that nature abhors a vacuum. That is my ground. The steam engine works on that principle; and if the testament on which the witnesses have been sworn is handed to me, I will show that my system of treatment is based on doctrines laid down in that holy book." He then referred to a bull of Pope Clement, and cited passages from the Aristotelian philosophy, which he said is now called the Platonic philosophy. The philosophy, he said, "shows that the T. P., coming before an *ablative* case in Greek (*sic*), is based on the principle of a vacuum." He traced the descent of this principle through various mythical and some historical personages (amongst the former was a son of Boadicea by King Arthur,) down to the present time, stating that it had been locked up till he revived it in old books. He said this principle had been recognised by William the Conquerer, and in several statutes in the reigns of subsequent sovereigns. He quoted a passage from an old book:—"Plato affirmeth that there is no emptiness without or within the world; but whoever undertakes to prove this must prove a negative." Having done this, he resumed—"I was acquitted before the coroner and allowed to depart; but they took me and detained me in a cell—and such a cell—so horrible, having the sulphurous gas which I inhaled from the dying man in me; it entered my lungs, passed down one hemisphere and up the other, festering and breaking out in my finger; and this is what I have got for my humanity, to say nothing of the loss of my pocket. But in the first book "of vacuity," Aristotle says, "There is voidness." We have, however, lost sight of the true principles of nature; and if it were not for old books we should be still in the dark. Here you see a man arrayed against a million. [He handed up to the judge "Plutarch's Moral Philosophy," with reference to page 801.] The soul of vacuity is in the wing, as shown in a feather. [Here he held up a feather, and ingeniously suggested that a small integument in the quill connected by strings with the muscles of the body by a valvular action exhausted the hollow of the quill when the bird expanded the wing for flight, so as to facilitate its rising from the ground.] He said it was observing that circumstance which led him to his discovery. He saw the vacuum in the quill, and how it was produced. The question was, where was the vacuum in the man? At length he perceived that the vacuum in man was between the periosteum and the bone, and that in instances of shock by railway trains, or in cases of burning by fire-damp, he, by means of his lamp, the constituents of which are similar to the components of the sun's light, could give relief.

The ancients gave the name of periosteum to the membrane enveloping the bones, on the true principle; for *peri* means about, and *osteum* means the bones. This skin is mentioned in the Psalms of David. Psalms cii., v. 5. It is there said, "By reason of my groaning"—that is, the groanings like the rattles of Matthew Tingle's throat. He went on referring to the Molucca Islands inhabited by curious birds; to the circumstance of kangaroos carrying their young in a pouch or skin, and eagles theirs upon their backs. He then referred to an book called "The French Academie." On being asked if he was prepared with witnesses, he said, "I found a difficulty of getting witnesses. My lawyer ran a large bill, and I determined to defend myself. I work at night. Reason loses herself in the day, but she works at night. The 2d chapter of Genesis shows that the breath of life is in the nostrils, therefore I introduce warm air to counteract the atmospheric pressure, for if they breathe cold air, the natural caustic of the cold air injures the patient. I do not drink wine or spirits, though I order them when I go to the inn. I do this to keep a roof over my head, but when the waiter is gone I throw it out of the window." He said he was a lieutenant in the navy, "one of the old school not one of the flinches." He named the noble families through which he had descended, including Prince Llewellyn and Owen Tudor, and those to whom he is related, and concluded with an earnest appeal to the jury to do him justice.

The justice summed up with great care, directing the jury that it was sufficient to maintain the indictment if it were made out to their satisfaction that the deceased died earlier from the treatment he had received than otherwise he would.

The jury, after ten minutes' consultation, returned a verdict of Not Guilty. The finding was received with loud applause, which was immediately suppressed.

If this case had occurred in America, Lieut. Ackerly would have been set down as mad and placed in the lunatic asylum, but because he is a rich man and of noble descent in England, he is a Magistrate of the realm (just imagine a crazy man being a magistrate in America), and when to all appearance he has hastened on the death of a fellow being by his crazy philanthropy, a jury can be found to render the verdict of "not guilty." He may now go on and commit a hundred of such acts. What is to hinder him, when he can floor the judge and jury by such a mass of crazy nonsense as he uttered in his defence.

The Roc's Eggs.

We noticed some time since the account of an alleged discovery in the island of Madagascar of certain enormous fossil eggs. Full conformation of the statement has been received by the recent arrival in France of three of the eggs, with some bones of a gigantic bird, which is not doubted to have hatched them, or been hatched from one of them. These extraordinary remains have been made the subject of a formal report to the *Academie des Sciences* by M. Isidor Geoffroy St. Hilaire, a distinguished naturalist, who pronounces them to be those of a bird which he has named Epiornis. It is classed along with the gigantic fossil birds of New Zealand, which were wingless, or non-flying. The discovery of the eggs was made by a curious kind of accident. The captain of a merchant vessel trading to Madagascar, being one day on shore, noticed a native using one of them for domestic purposes as a vase; and, struck by its remarkable appearance, and resemblance, in all respects except size, to an ordinary egg-shell, he questioned its possessor; who told him it came from the interior of the island, where many such were to be found. This led to a search, which was successful, a number of specimens being found, along with the bones alluded to. It begins to be evident that all the wonders of the antediluvian era have not yet been rescued from the earth, in which they have been so long hidden away from human eyes.

Ventilation.

Many years ago I was a member of the Legislature of Massachusetts and had my seat in the pit, the floor of which was much lower than the surrounding parts; it formed a basin and retained the heavy gases generated by digestion. After a few hours session the air became very bad and caused a general coughing; while the occupants of the gallery were not so affected. I was appointed on a committee to devise a remedy. Having ascertained that the air of the pit was heavier than in other places, I proposed to tap the floor for an issue, but this natural process was not adopted, and ventilation was sought by tapping the cornice, which did succeed. Some time before this I had proposed to a neighboring distiller to take the carbonic acid gas from his vats with a pump, which I made for him out of smooth pine boards, one foot in the section; the boxes were of pasteboard; the moving one was surrounded with soft fur; the rod was a thin lath, which, with the box, did not weigh half a pound, this box was worked with the thumb and finger; in about one minute all the gas of a very large vat was removed.

Now as much mortality is caused on shipboard by bad air too heavy to evaporate,—air constantly generating by the stomachs of the crew, and by the decomposition of the ropes, wood, and other vegetable substances, it must be removed forcibly. Working one or more pumps with a thumb and finger is no great labor, and it is not improbable that the passengers in the immigrant ships would take a turn at this labor any time for the sake of pure air, which would certainly take the place of that pumped out. Perhaps my plan is too simple and cheap. But the latter objection may be remedied, and makes the pump to answer upon an emergency another important purpose, viz., pumping water. In this case, the pump must be stronger, and had better be cylindrical. To reduce friction the water may be taken by a valved box and pulley, at which several men could work with separate ropes; this would be more dipping, but the friction would be saved.

Atmospheric air cannot be deprived of its 22 parts of oxygen without being unfit for respiration. The crews and passengers sicken most in bad weather when kept below. The air of ships is always worse in the night, for during the day the constant going up and down pumps up, in some degree, the heavy gas. Bacon tells us that in 1567 the mortality occasioned by bad air in the court was frightful, 300 died at the Oxon Assizes, and 200 sickened and died in other places, four judges out of a bench of six died, with numerous other officers and lawyers.

Dr. Lynd says, that the Typhus Fever is often generated by the healthy animal exhalation in crowded and ill ventilated places. Dr. Chisholm, says, that the effluvia of healthy persons in a state of morbid concentration will generate a principle similar to that produced by infectious and pestilential effluvia. Dr. Hunter says that new diseases are continually produced among the poor in great cities, from the want of pure air and cleanliness. Dr. Fordice says that other animals are subject to Typhus when crowded and ill ventilated. W. F.

Boston, 10 April, 1851.

Steam versus Stame.

Messrs. Editors—Your remarks on this subject, page 213, Vol. 6, have induced me to to apply to you for information in relation to it.

Is *stame* any other than what has been long known as "Unsaturated Steam?" Is it not formed in the same way, *i. e.*, by the direct action of heat upon steam? In absorbing heat, does it loose or decrease in elasticity or expansive power? When acting alone or unmixed with steam, does it give double expansive force as well as "volume," for every four degrees of heat?

You may ask, why these questions. We answer that we have believe, and do still believe, that these two terms are synonimous,—that the same laws govern both.

The properties of unsaturated steam may be found on page 85 of the Report made to Congress, by a Committee of the Franklin Institute, in 1848. And so far as we have been informed upon the subject *stame* possesses the same qualities. If this be true, what then? Look on page 211, Vol. 6, Scientific American, and you will there find a theory of the cause of explosions; and permit us here to say, that with all the information we have been able to procure (and unfortunately, during the last winter, explosions have been rather too frequent), we have had no cause to change our belief as there expressed, but, on the contrary, have been much strengthened in it. Will not some of our scientific men take up this matter and give it a thorough investigation.

Steam increases in temperature and elastic force uniformly, and, to certain degrees of heat, will give out a certain expansive and effective force. Unsaturated steam increases in heat, but *decreases* in expansive force to such an extent, that 533° of heat give but 6 atmospheres, or 90 lbs. pressure per square inch. These propositions, we believe are established beyond dispute, and the only question is, does the mixture of steam with unsaturated steam, restore to it an expansive and effective force commensurate with its heat? If it does, the cause of explosions will be satisfactorily accounted for. B.

Galena, Ill., April 2, 1851.

[The experiments of Mr. Frost have been investigated by Dr. Haycraft, of London. We will present a condensed view of his researches next week. They agree with the opinions of our correspondent. Ed.

Influence of Carbonate and Phosphate of Lime upon Grains.

It has been ascertained by analysis that the best grains are those which contain the greatest proportion of carbonate and phosphate of lime. The absorption of these salts could be explained in no other way but by supposing them dissolved by the water falling on the ground, and carried down to the roots of the plants. A direct experiment has been made which proved the truth of this assertion. Some grains of wheat were placed in pure silex sand. The water used for half of them contained only carbonic acid, and for the other half, the same water was used with the addition of carbonate and phosphate of lime.

Result.—Water with the aid of carbonic acid, can dissolve a certain portion of the above named salts, contained in the bones, making part of the manure.

Second—This solution is favorable to the germination of grains, by feeding them with the inorganic parts so essential to their perfection. The grain produced by the two plants raised under the above circumstances, was compared by weight—the one produced by carbonic acid alone was 80; the other produced by carbonic acid, carbonate, and phosphate of lime, was 120. The ashes of the last kind of grain were found to be five times heavier than those of the other kind, and contained a part of the salts dissolved in the water used to rinse them.

These facts explain how calcareous matters, contained in manure, act upon the growth of plants, and how the plants appropriate to themselves the parts of the soil the most suitable to their nourishment, by a proper assimilation of minerals into their *vegetal* organization.—[Translated from "*Le Moniteur Agriculture*" for the Scientific American. E. B.

Page's Electro-Magnetic Locomotive.

Professor Page's electro magnetic locomotive was exhibited last Saturday, the 19th, on the Washington Railroad, in the presence of a large concourse of spectators. The experiment was partially successful, a power equal to five horses being obtained, but the car ran very slowly. Its self-moving appearance on the track was unique, and created much wonderment.

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New Inventions.

Improvement in Carriage Wheel Hubs.

We would call attention to an improvement on Carriage Wheel Hubs, secured by patent on the 1st inst., to the inventor, Simeon Heywood, of Claremont, N. H. It is a neat and useful improvement, and by a simple contrivance converts the wheel into its own wrench for turning on or off the screw-nut which confines the hub upon the axle. The mechanism employed is a dog and spring, both being enclosed in a close metal cap which covers the outer end of the hub, and excludes all dirt. The dog is operated from the outside by means of a common screw-driver, and when turned in one direction, catches the nut in such a manner that it will be turned off by turning the wheel in the same direction. The same operations reversed will turn the nut on and secure the wheel; the dog may then be turned to a position midway between the above, where it will be securely retained by the spring, and the wheel be left free to revolve.

Substitute for the Crank.

Mr. S. V. Strait, of Litchfield, Medina Co., Ohio, has taken measures to secure a patent for changing a reciprocating into a rotary motion, in other words a new substitute for the crank. There are no ratchets employed, but bearing curved guide plates, four of them upon a moving piston slide head, which act upon two curved projections or cams secured to a wheel attached to the shaft that is to receive the rotary motion from the reciprocating motion of the piston. By changing the curved guide plates so as to act upon the upper sides of the cams, a motion to the shaft is given in a contrary direction from that which it receives when the guides act upon the lower sides of the cams. The principle of action is that the guides attached to the piston slide, keep acting upon the wheel on the shaft like a pilot at the wheel of a steamboat. He employs a very ingenious plan for changing the motion, but the principle we have stated, is the ruling feature of the invention.

Improved Stave Machine.

Mr. Dennison Woodcock, of Independence Centre, Allegheny Co., N. Y., has taken measures to secure a patent for improvements on machinery for sawing and dressing staves, which has been considered novel and good by many who have seen the invention. A cylindrical saw with teeth around its one edge, is fitted loose on a pulley somewhat smaller in diameter, and forming a whip saw over it. The pulley has cutters on it, and the stave is fed in, in such a way that it passes through the saw it may be said, the saw acting on the outside of the stave, cutting it convex the whole length, and the cutters on the pulley cutting the inside concave the whole length. The saw forms a kind of eccentric on the pulley, the space between the two being that which guages the thickness of the stave. The section of the stave is nearly a crescent.

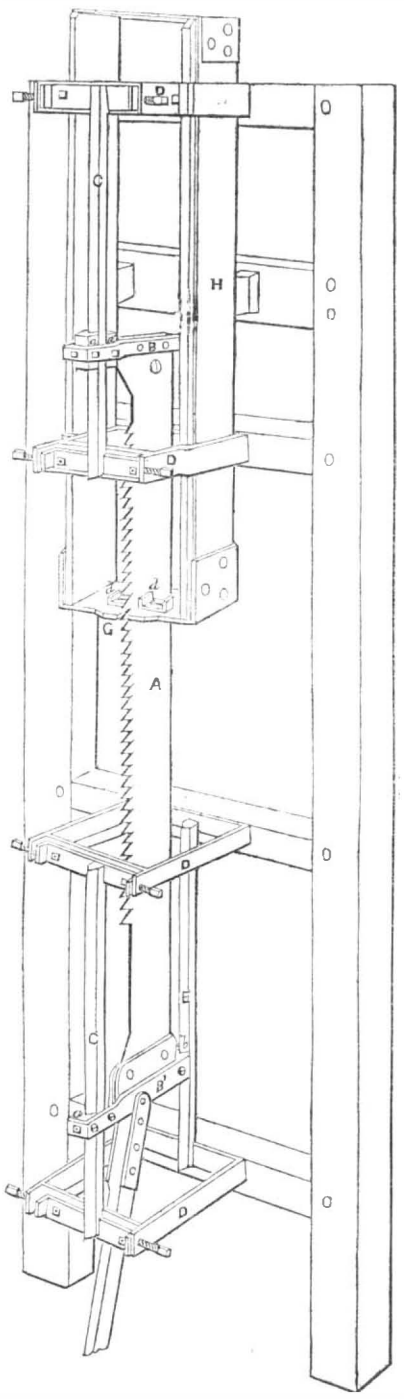
Improved Harvesting Machines.

Mr. George H. Rugg, of South Ottowa, La Salle Co., Ill., has taken measures to secure a patent for valuable improvements in harvesting machines—grain reapers. The machinery is so arranged that the driver while sitting in his seat can work a lever with his knees and move a guide roller and the machinery in any direction. The cutter or sickle can also be tightened by the driver while sitting in his seat, and the fingers for gathering in the grain or grass are so shaped and combined with rivets, that they never clogg. These improvements are allowed to be of considerable importance.

The London Patent Cab.

We understand that the omnibus which we spoke of two weeks ago, has been patented by a Mr. J. A. Franklin, (worthy name) and is quite a novelty, although a somewhat expensive one. Around the vehicle runs a gallery by which each passenger goes to his place, being admitted thereto by a private door which opens at that place alone. His seat is the perfection of comfort, and before him is a mirror in which he can study his own physiognomy undisturbed. A pipe of gutta percha leads to the driver, with whom he can confer whenever he desires.

Improvement in Hanging Saws in Saw Mills.



This improvement is the invention of E. H. & Sandford E. Parsons, of Wilkesbarre, Luzerne Co., Pa., and was secured by patent to them, April 30, of last year.

The accompanying figure is a perspective view showing how the mill saw is hung.

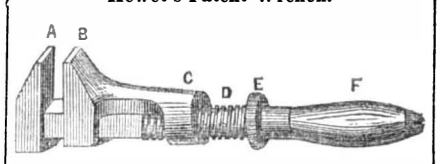
The invention consists in hanging the saw in advance of its front or cutting edge, in such manner that the pressure of the log advanced against it is in line with the direction in which the carriage is advancing, thus dispensing with a heavy saw gate, which is usually required to strain the saw.

In order to effect this result each extremity of the saw, A, is fitted with a light frame, B B, with the lower one of which the pitman is connected by which the saw is driven; the frames project in front of the cutting edge of the saw and each is fitted at its front extremity with a pair of brasses, *a a*,′ which embrace a double V shaped guide, C, but are not set up tightly against it. The guides, C C, are supported at their upper and lower extremities by brackets, D, projected from the framing of the mill, and are fitted with set screws by which they are adjusted to their position. It will now be perceived that when a log is forced by the carriage against the cutting edge of the saw, the pressure will cause the saw to turn horizontally upon the guides as axes, until its horizontal direction corresponds with the direction in which the log is advanced by the carriage, the saw being thus forced to run true while sawing. When the saw is not cutting, the guides thus far described are not sufficient to keep the saw steady and hence it becomes necessary to apply a pair of single V guides, E E, directly behind the saw and parallel with those in front. Each of the frames, B B,′ is also fitted at its hinder extremity with a brass, *b*, to run upon the hinder guide: these brasses are not set up snug against their guides, but a sufficient play is given to allow the saw to accommodate itself to the direction in which the carriage moves. When the saw is cutting the hinder brasses do not act, as the pressure of the log alone against the cutting edge not only steadies it, but tends as before described to keep it running truly.

The saw is prevented from buckling or bending longitudinally above the log by a pair of guide blocks or model pins, *d d*, which are secured to a yoke, G; the latter embraces the saw and forms the lower cross piece of an adjustable sliding frame, H, which can be raised or depressed according to the thickness of the log on the carriage. Saws arranged on this principle may be seen in Binghampton, Broome Co., and at Springville, Erie Co., N. Y.

More information may be obtained by letter addressed to the inventors and patentees.

Hewet's Patent Wrench.



This wrench was secured by patent to Henry W. Hewet, of New York, and is now manufactured by E. F. Dixie, of Worcester, Mass. A is the fixed jaw; B is the movable jaw; C is the nut on the movable jaw; D is a revolving tube with an octagonal lower flange, E. This tube has a male screw on its outside working into the nut, C, of the movable jaw. By grasping the handle, F, and working the octogonal part, E, of the tube, the movable jaw is advanced towards or from the fixed jaw, A. The screw tube, D, is placed between the handle and the fixed jaw. The claim of the patent is for the screw on the outside tube revolving on the main bar, the said tube working in a nut on the movable jaw. We have testimonials from Woodburn, Light & Co., McFarland & Bisco, C. Hovey & Co., C. Niles, &c., of Worcester, speaking very highly of its merits, and stating that they believe it to be in many respects the best in use.

The agents for this wrench are Messrs. Bliven, Clapp & Douglass, No. 8 Platt st., New York.

The Lever---its Principles.

Many people suppose that there is power in a lever. This is an error. A lever is but a stick or crow bar which is totally inert except when power is applied to it. A long lever has no more power than a short one, not one bit. It is true that a man exerting a pressure of 200 lbs. constantly will lift the same weight with as much ease as a man with a lever of half the length exerting a pressure of 400 lbs., but then the man with the short lever will move the weight through twice the space of the long lever in the same time. A screw propeller with a shaft and blade one half the diameter of another, will move the vessel just as fast, if it receives double velocity,—the lever is smaller but the velocity is greater. "Velocity and pressure," the golden rule of mechanical science.

To Prepare Canvas for Oil Painting.

1st Process—After the canvas is stretched in the common way, apply with a brush the following size and rub in well: 4 oz. good glue, ¼ oz. alum, and cut ¼ of an inch of white soda soap from off the end of a bar, then add 1½ pints of water, and melt the whole over a slow fire, and strain it through a fine cloth.

2nd Process.—Take 1 part alum, 2 parts white soap, and 3 parts of glue, with water enough to make it of consistency of the first size, melt and strain as above, then mix whiting with it so as to make it considerably thick, not so thick however but that it can be applied with a coarse brush to the canvass. If any person should like a ground less absorbent, they can pass a thin coating of oil over the canvas after it is perfectly dry.

Ossian E. Dodge.

This famous comic singer and princely good humored fellow, dropped in upon us a few days since, with one of his best smiles irradiating his countenance. We were pleased to learn that he intends to offer a glorious entertainment at Tripler Hall, next Tuesday, the 29th inst., and we bespeak for him a generous welcome from our citizens. Mr. Dodge is a warm-hearted generous man, and a universal favorite among all who know him. The ladies, we are sure, will not permit their husbands or lovers to keep them away from "Tripler," when Dodge comes out with his programme. It will be a splendid affair. It is concluded upon, in consideration of Mr. Dodge's intimate association with the American press, that the down-east brethren are to take an excursion to Gotham for the purpose of attending the Concert. This is really a testimonial to his merits, and we shall anticipate the occasion with peculiar pleasure.

To Render Canvas Water-Proof.

Take 7 lbs. of soap and dissolve it in two gallons of water, and while at the boiling heat add 3½ lbs. of the sulphate of zinc (white copperas). The sulphuric acid of the salt combines with the alkali of the soap, and the oxide of the salt combines with its oil and forms an insoluble metallic soap, which, when cold, rises to the surface and has the appearance of a white hard mass. This is afterwards reboiled to purify it. The next step to be taken is to boil 2½ gallons of linseed oil along with 1 pound of potash until it assumes a soapy appearance. The whole is now boiled along with two pounds of fine animal charcoal and five quarts of water, which purifies the mixture, after an hour's boiling, when the whole is filtered and is of a clear color. About one pound of sugar of lead (acetate) and one pound of rosin is mixed with the oil, and boiled for one hour. Into this mixture is stirred at a boiling heat, 2 lbs. of the metallic soap described above, and after it is dissolved, about two quarts of india rubber dissolved in turpentine is added, and this completes the making of the mixture. This is put on to the canvas with a brush at a heat of 160 Fah. Two coats will be found sufficient to make it water-proof. More however may be applied. Each coat should be allowed to dry before the other is put on. If copperas be employed in this mixture, it will make it of a brown color, and cobalt a blue.

To make leather water proof, take equal quantities of the metallic soap and raw linseed oil, mix them together, and place the liquid in at a heat of 225° and suffer it to cool gradually. The leather should be dried in the atmosphere, when it will be perfectly pliable. Any quantity of the above may be made, so as the proportions are maintained.

This is a first rate composition for the purpose stated, and one to which painters should give peculiar attention, so should the manufacturers of glazed and patent leather.

Whitewashing.

As the time is now at hand for whitewashing on a large scale, we will give a receipt which is the best known for out-houses. Take half a bushel of good unslacked lime, slack it with boiling water and keep it covered during the slacking process. Strain the liquid through a seive, and add a peck of clean salt dissolved in warm water, add three pounds of boiled rice or wheat paste and half a pound of dissolved glue. Add five gallons of water to this mixture, and it is best to put it on hot, but in that case use only old brushes, or make allowance for the spoiling of them.

It has been found that our dry winds bite off, as it were, more of the whitewash than do rains. The salt is to obviate this evil. For whitewashing the interior of dwellings, do not use any salt, as it absorbs moisture, and to the above lime, add about two pounds of Spanish whiting. It makes the white more *clear* looking if a little indigo is squeezed through a cloth amongst it. Amongst the lime, Spanish brown or ochre may be stirred to make a colored lime paint. The sulphate of iron (copperas) makes a buff color; the sulphate of copper, (blue vitrol) a blueish color.

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Scientific American

NEW YORK, APRIL 26, 1851.

Knowledge is Democratic.

The few remarks which we are now about to make, are applicable to men of every age and in every condition of life. "Knowledge is power:" wealth is only desirable because of those things which it can purchase to gratify the desires, but there are some things which cannot be purchased with wealth, and knowledge is one of them. Wealth can purchase houses, lands, adherents, and bauble honors, and a man may sit down and enjoy these things at once. An heir to an empire may be born, he may be the legal successor to thrones, armies, and navies; over all these he may exercise dominion and be their possessor, but no man was ever born an heir to *knowledge*. An idiot may be born a prince or lord, a fool among beggars, while the son of a beggar may be more than a prince among kings and more than a titled lord among magnates. Books, teachers, and money may be lavished to procure knowledge, but the individual cannot obtain it from teachers or books, without personal effort. Knowledge can only be obtained by labor, and without this no man can obtain it; and however poor a man may be, if he labors to acquire knowledge, he cannot fail of success *according*—yes according—to the amount of labor he expends in the search of it. The nobles and magnates of European nations are well aware of the "power of knowledge." This is the reason why they have endowed splendid colleges to which they send their sons to labor as any plebian's sons must labor, in acquiring knowledge. Knowledge therefore, is democratic; it is true that more time and means may be at the command of the rich than the poor, and in this respect, the former have the decided advantage; but they are brought to the same level in one respect, they must work. One acquires knowledge faster than another, all have not the same faculties, but talent is in the mass. The majority of great men have sprung from the people. Shakspeare, Newton, Franklin, Watts, Burns, Fulton, &c., were men of the people, the workers—plebians born, but kings of mind, while crowned monarchs beside them are but kings of mud.

There is another wrong notion abroad respecting "a learned man." Some suppose that a man cannot be learned unless he is a great astronomer, or can speak twenty or thirty languages, and so on; and others that a man must be profoundly acquainted with all the sciences. There are very few who acquire a profound knowledge of more than one science, as a single science requires a lifetime of study. Such men as Humboldt and Henry are exceptions; but although a few men become eminent in a number of sciences, the fact is beyond dispute, that a man must pursue continually one branch of science to become profoundly versed and eminent in it.

We talk of this and that influence, levelling the mass of men upwards, but the great elevator and democratic *reformer* is knowledge. The well behaved intelligent man is respected although he may be poor, and we wish this fact to be spread far and wide, and to be felt by every man. The possessor of knowledge who enjoys the simple pleasure of reading, is more rich strictly speaking, than the rich ignorant man and he feels conscious that he has the means of gratifying a desire—of enjoying an enjoyment (tautological though the expression be) of a more pleasurable nature than any which can be enjoyed by the most wealthy barbarian who cannot say his A B C.

New York Gas Lights.

Our corporation authorities are great philosophers. Whatever progress others may have made out of the common well-beaten track of old common sense, they exhibit a patriotic spirit of conservatism, for which each member deserves more than a civic crown, or the equivocal honor of being supposed to be caponlined, when wearing the heraldric honors of ex-alderman &c. To the honor of our corporate authorities be it spoken, they alone seem to preserve that deep respect for almanacs (as almanacs of moonlight) which seems in this sceptical age to have departed from all the world beside. Thus when a contract with a gas company to supply our streets with gas light, (gas was not made to light our streets with light, but to supply the city with gas, mind that), the moon in her usual course has always been brought in to fulfil part of the contract. Now this would have been very wise, had the moon been a primary luminary, but no matter. Well it so happened on the nights of Wednesday and Thursday of last week, that the moon failed according to the almanac, to fulfil her share in the contract, and consequently our city was without light. The streets during the storm were so dark, that even "a lantern dimly burning," would have been an object of delight to cheer the lonely traveller on his darksome way. The fault was in the moon not fulfilling the part allotted to her in the contract. As for the almanacs wherein that part of the moon's contract is specified, why we don't know what our philosophic aldermen may make out of it, unless it be to pass some penal statute, to force the nightly luminary into future obedience. As a people we are far in advance of other nations in some things, but not in municipal management—that's a fact, more especially in the manner of illuminating our streets.

Atlantic Mail Station on the West of Ireland.

"We learn from Ireland," says the Tribune, "that the advantages which the harbors on the Western coast of the Island, and especially Galway, offer to American commerce, are about to be set forth in a memorial to the President and Congress of the United States, which will bear signatures of great respectability from Dublin and other parts of the Island. It is contended that the voyage would average at least forty hours less than to Liverpool, and might be accomplished with greater safety and with less delay from unfavorable winds. The memorial will ask to have the U. S. Mail Steamers stop at Galway instead of going to Liverpool. We have no doubt its petition will be respectfully considered, and that such action will be taken on it as on mature consideration shall be found most advantageous to the interests concerned. If it is a fact that the transit between Europe and America can be made more quickly and safely by way of Galway, that must eventually be the route."

It is all a piece of nonsense to suppose that either the American or British Governments will pay the least attention to the unreasonable notions of Irish corporations or any other corporations. The payability of mail routes is the first question, not the practicability. The route between Halifax and England is shorter than between Liverpool and New York, yet it was one of the wisest moves ever made by the British Government, in allowing the Cunarders to come direct to New York. If Galway was a shipping port of any consequence,—if it would pay to carry freight and passengers there direct, then their requests would be reasonable, if backed up with the home authority. What if the American mails were carried to Galway, without any provision by the British Government to make that a mail station? Why the mails might be there for a month without reaching the London Post Office. The best way the Irish people can do is not to go round the world begging for an Irish Atlantic Mail Station, but to jump in and invest their funds in steamships and make Ireland a commercial country. Let Dublin, Galway, and Cork look to Belfast, and take an example from her in respect to commercial enterprise. It would be more reasonable for the people of Boston to petition for the departure of the American Mail Steamers from that port, it being at least one day's sail nearer to England, but would not the idea be laughed at? Why? Because the mail contractors are a New York Company, and they have rights which cannot be annulled by the government. It is the same with the Cunard vessels, but the Irish corporations seem to think that governments should do every thing for that people and the people nothing for themselves. The people make the country, not the government. The Cunard steamships are owned by a Scotch company; why not an Irish one? Scotland pays about as much taxes, has only one half the inhabitants, her soil is poor to a proverb, her nobles are continually in England, and yet one single company, in one city, owns more steamboats than all Ireland. Ireland has the same advantages. Let Irish gentlemen stop talking and go to work and do something for themselves. Ireland has noble rivers, a rich soil, and a good climate, and yet what do we see? Only one city in progress in all the island (Belfast), and that one in a barren part of the country compared with Dublin or Cork. Those who dare not tell the Irish the truth are not the true friends of Ireland.

Painting.

The time is at hand when houses will be painted to restore the worn out coating, and old paint, dingy, but of sound surface, will receive the force of the scrub brush. When we take into consideration the preserving nature of paint, it may be said "it costs nothing." It is very unwise to allow the paint of houses to fade or be worn off to a certain point of abrasion, in order to save a little—the intended saving is an extra expense. Well do careful captains of ships take advantage of every opportunity to put on the paint, they know that economy lies in following the old maxim "a stitch in time saves nine." Almost all our farmers do their own painting, so do our mechanics who reside in the rural districts. White paint is that which is most generally employed, and there is no other kind so *universally* applicable, both for the outside and inside of buildings. In the mixing of paint, let us give a few words of advice, and first of all, the cheapest is not the cheapest in the true sense of the word. White zinc is stated to be a good substitute for white lead, we do not speak thus personally about it. Use only the best white lead if you use any, and employ the best linseed oil boiled. A little turpentine is used in the mixture, and here is where we wish to give the caution, use but very little of it. It is well known that turpentine makes the paint dry much quicker, but it fulfils the old adage "soon ripe, soon rotten." The turpentine reduces the oil into a saponaceous compound, therefore, if much turpentine is used, the paint will wash away with heavy rains. Those who have seen one paint last three times as long as another will now be able to tell the reason. Boiled linseed oil, when dry, has a hard yet elastic skin; in this consist its preservative and enduring qualities. Rosin varnishes are liable to crack and blister, not the linseed oil varnish.

In painting rooms we have noticed some grand mistakes, and they are not uncommon. In the choice of color, much, yea, everything, depends on situation. A room that is much shaded should be painted a lively color, and one that looks to the north should be painted a warm color, one looking to the south may be painted a moderately cold color. We have seen rooms looking to the north painted light blue, they always looked cold and cheerless. The same care should be exercised in selecting paper for rooms, so as to have the colors harmonize with the situation. Carpets should be selected with the same regard to the association of feelings. Houses facing the north side of streets, when painted dark brown, really look as if they were "done up" brown.

Quarrels of our Countrymen in London.

Our correspondent merely hints at a misunderstanding among the exhibitors from our country, who are now in London. There has been a dispute, and we are sorry for it—all proceeding from the floundering and blundering certificates granted at Washington, to M. C. F. Stansbury and Mr. Riddle. It seems that Mr. Stansbury received a commission to see all the goods safely on board the St. Lawrence, and safely delivered at the Exhibition, when his powers were to cease, after which Mr. Riddle's were to commence, and to wind up with the termination of the Exhibition. Well, it seems that Mr. Stansbury got himself introduced as *the* Commissioner, and was introduced to the Queen as such, when lo! who should arrive but Mr. Riddle, and his certificate is at once recognized by the Commissioners of the Exhibition. The American exhibitors have held two meetings, and our friend Mr. Macdaniel stated that he saw the Commissioners hand back Mr. Stanbury's certificate and place Mr. Riddle's on file. A vote was taken to recogniz Mr. Riddle as *the* Commissioner, and adopted unanimously.

It seems that the certificates for Stansbury and Riddle were very carelessly made out—just like the way they do business, sometimes, at Washington. But after it is well known that Mr. Riddle is the *sole* commissioner, Stansbury, by the last reports, had refused, formally, to deliver over the goods to him, and there the goods of our exhibitors were lying piled up in heaps.

Our government is great for appointing scuffy men to minor offices—men who, by such conduct, bring disgrace upon our country. Others will think we are a set of disorganizers in word and deed. Well, it is a good thing that we have men, and many of them, too, who stand above such petty doings—men who are honored in every land. We hope that our exhibitors will yet stand high in the scale of competitors, and bring honor upon themselves and their country.

The Exhibition will continue open about four months.

Patent Cases.

U. S. Circuit Court, New York, April term. Judge Nelson, Thursday 17th April.

Alfred Hall vs. John Wiles—For alleged infringement of patent for the manufacture of brick presses. Verdict for plaintiff $1,000.

This case has occupied the court for more than one session; it has been a long trial, and in one instance the jury did not agree. The patent claimed to be infringed is a brick press.

On the same day, before Judge Nelson, the following cases were decided:

John Brown vs. Leonard Johnson and Richard W. Trundy—For infringement of patent for gaff of vessel, the improvement being in a means to prevent its chafing the mast. No defence offered. Verdict for plaintiff for $5 (for one gaff); amount trebled by the court.

Similar suits, with like results, were tried against Jas. Nesmith and Jose Maria d'Mello.

[The patentees, it will be observed, in these cases, were successful. We like to see infringers real, self-known infringers, put through. This does not always happen.

Notice to Correspondents.

Those who have any business to communicate with the Editor, he desires them to do so by letter in as few words as possible. Write, and re-write, so as to condense and clarify:—this will be found to be of great benefit to those who write. We have many correspondents who can and who do this, in a commendable manner. We do not address this to them. Thoughts are more easy to condense on paper than by tongue, so every man should also write to us clearly and in a compact style. We have received a number of communications, lately, which have been laid aside. We want short but comprehensive and clear articles.

Young Children in Factories.

The Providence (R. I) Post states that there are young children working in some of the Rhode Island mills, of such tender ages that they appear to be more fit for cradles than working in a factory. During the past winter they have been employed *from half-past five in the morning till 8 o'clock in the evening*. We do not know anything about the positive correctness of the above: it appears too terrible to believe. What are the Quakers of Rhode Island about?

Shortest Passage Ever Made Across the Atlantic.

The American Republican Mail Steamship "Pacific" arrived at this port on Saturday at 10 A. M., after a passage of 9 days and 20 hours from Liverpool, the shortest on record The Pacific has made the two shortest passages ever made across the Big Pond.

When news of the Pacific's arrival was announced at the Exchange, three cheers were given for the Collins' Line.

It is expected by many now living that they will yet cross the Atlantic in seven days.

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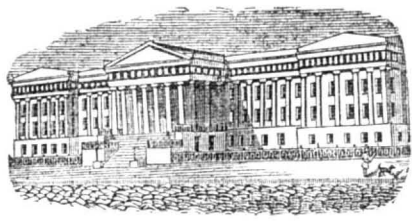

☞ Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS
Issued from the United States Patent Office.
FOR THE WEEK ENDING APRIL 15, 1851.

To C. A. Broquette, of Ruy Neuve, St. Nicholas, St. Martin, France, for improvement in material for transferring colors in Calico Printing. Patented in France, April 1, 1849; in England, April 21.

I claim the use of extract of fibrine, to form, with or without any other oily or fat matters, by the means which I have described, or any other equivalent means, a mastic, adequate to thickening and retaining on fibres, threads, tissues, of every description and of every material or substance, the archil color, and such other colors as are incorporated with that mastic.

I also claim the above process of preparing and purifying the extract of cassine, in order by the means which I have specified, or any other equivalent means, to impart to fibres, threads and tissues, of vegetable nature of every description, by means of a preparation of mordant, the property of better uniting to or attracting the coloring matter of archil, and in general other coloring matters, either in printing or dyeing, whether this preparation or mordant be applied on the fibres or threads of vegetable nature, previous to the weaving, or whether it be applied after the weaving on tissues of vegetable nature, or on tissues composed partly of vegetable and partly of animal substances.

[We understand this to cover the use of glue in color making: if so, we know of it being used perhaps before Broquette was born. The Patent Office, however, knows little about *these* practical arts.

To John Buckingham & J. H. Baird, of Watertown, Conn., (assignors to The Scovill Manufacturing Co.), for improved Milling Tool.

The rotaring die for making impressions on metals and other substances, is a well known instrument, and we make no claim founded on that instrument, in itself considered. But we claim the combination of such die with an axle, on which the same may vibrate, which axle is at right angles with the axis of rotation, and not in the same plane, substantially in the manner and for the purposes set forth.

To E. T. Hanon Valcke, of Paris, France, for improvement in Mill Stones.

I claim constructing the running stones of mills with oblique apertures, or passages, through the body of the stone, and provided with hoods or funnels, to collect the air during the rotation, and connected on the grinding face of the stone, with furrows, substantially as described, when this arrangement is combined with the use of vertical pipes leading from the extremity of one of the apertures or passages, to a funnel leading to the next succeeding oblique passage in the body of the stone, substantially in the manner and for the purpose specified.

To John Krauser, of Reading, Pa., for improvements in Iron Railings.

I claim securing the palings permanently to the horizontal rods or bars of iron, for the purpose of constructing an entire section of railing by means of the methods of operating the rods or bars with the palings having jaws, recesses, and bearings, as described herein, and together with other devices in castings, termed saddles or troughs, having dovetails and tenons cast to them, for the purposes herein named, and this I claim, whether the several parts be formed and adapted to each other, and operated precisely as represented and described, or otherwise, the results always produced being effected by means equivalent to those within named.

To R. F. Loper & John W. Nystrom, of Philadelphia, Pa., for improvements in the Steam Engine.

We claim, first, the construction and arrangement of the columns by which the steam cylinder is connected with the bed frame, in such manner that they constitute the air pump and condenser, substantially as herein set forth.

Second, the method herein described of actuating the cut-off valve of one steam cylinder, by a motion derived from the valve or valve rod, of the other cylinder, substantially as herein set forth.

Third, the adjustable supplementary valve in connection with apertures or ports in the steam valves, by means of which the steam can be worked at full pressure throughout the whole length of the stroke, without disengaging the cut-off valve.

To J. S. Marsh, of Lewisburgh Pa., for improvement in Cooking Stoves.

I claim the apertures and the passages by which the air containing the surplus heat from the oven is conveyed to the back of the fire-chamber, where it receives an access of heat, and afterwards to the flues, by which arrangement the heat is equalized between the two ovens, and the upper one is ventilated as set forth.

To S. S. Putnam, of Boston, Mass., for improvement in Window Curtain Fixtures.

I claim the method or means herein described, of fastening the confining bar in the groove of the roller in which the cloth is pressed; that is, by having the ends of said bar rebated as described, and fitting the caps at the ends of said roller over said rebated ends of said bar, as above set forth; this arrangement of the caps and bar, (the said caps or one of them, being loose, so as to move laterally, but not to revolve, the side of the rebated ends of the bar operating as shoulders, to prevent a revolution) enables me to adapt my improved fixture to windows of different widths.

To John W. Robbins, of Camden, Ohio, for improvement in setting logs in saw-mills.

I claim, first, the vibrating dog having the distance of its head or tongue, with respect to the saw, adjusted laterally by a set screw, substantially as represented, so that by planing the tongue of the head, in each successive curf, and bringing the face of the log in contact therewith, the thickness of each consecutive board is exactly counterpart with the first.

Second, I claim, for analogous purposes, at the rear end of the log, which is destitute of a curf, the vibrating dog, whose distance, in respect to the stationary block, is adjustable, by means of a set screw, the range between the head of the dog and the block, affording an easy and determined means of giving exactly the same thickness to the boards, at the rear end of the log.

To A. D. Spoor, of Troy, N. Y., for improvement in agitating Grate Bars.

I claim the application to the movable grate, of two separate mechanical movements, whereby it may receive a rocking or a vertical vibratory motion, at pleasure, the several parts constructed and operating substantially in the manner shown and described.

To Andrew Dennison, of Brunswick, Me., for machines for cutting out the corners and scouring the edges of paper for boxes. Ante-dated April 4, 1851.

I claim the combination of the knife and die, substantially in the manner and for the purpose herein described.

To Samuel Avery, of Phoenix, N. Y., for improvement in apparatus for operating Window-blind Slats.

I claim making the cog wheel with such a length of teeth that, when its spindle is forced outwards by the spring, they shall engage with the teeth on both sides of the cog wheel, F, thereby locking the same and securing the slats in any desired position, substantially as herein described.

To H. Hoffman & C. F. Hill, of New York, N. Y., for improvement in Ornamenting Marble.

We claim the above described ink, and the wax color and etch water used in combination therewith, substantially as described.

To D. G. Littlefield, of Lowell, Mass., for improvement in Cooking Stoves.

I claim the peculiar arrangement or manner of combining the fire-place, the descending or diving flues, the ash-pit, the lateral chambers, the ascending flues, the central discharge flue, the oven or air heating chamber, and its surrounding flue space, all as represented and specified.

To John & Wm. W. Wood, of Conshohocken, Pa., for improvement in the process of manufacturing glazed sheet iron.

We claim the employment of thick plates of iron as shield plates; or, in other words, placing four (more or less) thin plates between two shield plates of double weight. in forming packs for rolling, so that each shield plate will make two plates of proper size to constitute the inside plates of another pack, for the smoothing and finishing process, or rolling.

DESIGNS.

To D. Arnold, of Providence, R. I., for design for Cooking Stoves.

To John Abendroth, of Port Chester, N. Y., for design for Cooking Stoves.

(For the Scientific American.)

Practical Remarks on Illuminating Gas.

[Continued from page 238.]

The coal to be decomposed is first broken into small pieces, say from 3 to 4 inches square, and is then introduced into retorts (generally of cast iron), which are brought up to a cherry red heat, or a temperature of about 27°, Wedgewood, by a furnace in which they are placed, and whose fire is conducted by a series of properly arranged flues under and around them; the coal is then reduced to a level of uniform thickness, and the retort rendered air-tight by a lid luted with plastic clay, which is placed over its mouth. The amount of coal introduced at one time or as it is termed, a *charge*, is constantly varying; the amount of the charge being governed by the temperature of the retort, the freedom with which the gas is liberated, and various local causes, but the general quantity used for one charge in a single retort, is 2 bushels, or from 150 to 175 lbs. The decomposition of the coal begins immediately after being introduced into the heated retorts, and continues several hours; the quantity of gas generated gradually decreasing towards the end. According to Peckston, in an eight hours' distillation, the relative quantities of gas given off are, first hour, 20; second hour, 15; third hour, 14; fourth hour, 13; fifth hour, 12; sixth hour, 10; seventh hour, 9; and the eighth hour 8 per cent. of the whole quantity; this experiment was conducted with a uniform temperature and the retorts constantly at a red heat.

Before we describe the remaining portion of the apparatus, it may be proper to make a few remarks upon the ingredients of this gaseous mixture, and also upon the new combinations formed while the decomposition is going on. This combination consists (after the separation of the tar and aqueous liquid) of olifient gas, light carburetted hydrogen, carbonic oxide, hydrogen, vapors of the volatile oils of tar, sulphuret of carbon, ammonia, sulphuretted hydrogen, carbonic acid, cyanogen, sulphocyanogen, sulphurous acid, hydrochloric acid, aqueous vapor, and nitrogen. The carbonic acid and a part of the free hydrogen have doubtless the same origin, being formed from the moisture in the coal and from portions of aqueous vapors that are generated, which, passing over the red-hot coke, are converted into two gases. The nitrogen of the coal is obtained entirely as cyanogen and ammonia, partly in combination, and the latter is also found with sulpho-cyanogen, and the other acids forming volatile salts; the free nitrogen, on the contrary, is the residue of the atmospheric air contained in the retort. Sulphuretted hydrogen and sulphurous acid are due to the sulphur generated from sulphuret of iron, commonly called iron pyrites, which almost invariably accompanies coal, and great care should be taken that all coal containing this substance be rejected. In the former the sulphur unites with the hydrogen of the coal, and in the latter it unites with the oxygen of the water contained in the coal. The first four of the ingredients named, viz., olifient gas, light carburetted hydrogen, carbonic oxide, and hydrogen, together with the vapors of the tar oil, form the proper bulk of the gas, and upon these the illuminating power is wholly dependent; the other ingredients are small quantities of impurities, which are constantly varying under different circumstances, and are mostly governed by the supervision and well-directed care of the manager.

If the heat at which the distillation is carried on is not of a uniform temperature, in all cases, the results, even from the same coal, will vary, according to Clegg, from fifty to sixty per cent, both in quantity and quality. If the retort is too cold, nitrogen and hydrogen are liberated and unite, forming ammonia, vapor of bitumen, (which afterwards condenses forming tar, ammoniacal liquor, and essential oils) and carbonic oxide. If the retort is too hot, all the dense hydro-carburets are resolved into carbon and hydrogen; the product is greater, but the specific gravity little more than that of hydrogen, and the illuminating power of the gas decreased in the same ratio. (It will be found that the illuminating power of gas generated under the same circumstances is almost directly as its specific gravity; the heavier the gas, that is the greater its specific gravity, the greater the amount of light given. If gas of specific gravity 0·300 gives the light equal to six candles, that of the specific gravity 0·500 will give the light of ten candles, or as 3 to 5. This theory has been doubted; but Mr. Clegg ascertained the same result in 1817 from many experiments). Dr. Henry found that below a red heat almost nothing but hydrogen atmosphere air and some tar pressed off with hardly any illuminating gas, but that at a high temperature illuminating gas alone appeared, composed of carburetted hydrogen, carbonic oxide, hydrogen and nitrogen. At the heat of 27°, Wedgewood, or that of melting copper, (which has been found to be the best) the bitumen is decomposed, at the same time the hydrogen is liberated and unites with its carbon forming olifient carburetted hydrogen gases, often of specific gravity 0·470. The operation should not be continued for too long a time, for the process would in the end be productive of almost exclusively carbonic oxide and hydrogen. The following table showing the result of an experiment by Henry, out of 100 parts of Wigan Cannel Coal, fully establishes these statements:—

Time of collection.	Specific Gravity.	Carbur'ed Hydrogen	Carbonic Oxide.	Hydrogen	Nitrogen.	Abs'b'd by Chlorine.
In the first hour,	0·650	82·5	3·2	0	1·3	13
	0·620	72	1·9	8·8	5·3	12
	0·630	58	12·3	16	1·7	12
5 hours after commencement,	0·500	56	11	21·3	4·7	7
10	0.345	20	10	60	10	0

After the heat has developed the gaseous and liquid products of the coal, the latter in the form of coal tar and ammoniacal liquor are deposited in receivers or tanks, while the former are conducted by the means of cast-iron pipes to the refrigerator or condenser, which consists of a series of vertical pipes, so arranged as to expose as much cooling surface as necessary, and connected with boxes upon which they rest; the warm gas, as it issues from the retorts, passes through this series of pipes, and becomes cooled, whereby the vapors of water, tar oil are condensed, and reposited in the boxes, while the aeriform portion is conveyed off, with but a very limited quantity of the tar and oil in suspension.

J. B. B.

(To be Continued.)

American Shawls.

Ingenuity has been the occasion of recent success of the eastern mills in manufacturing shawls. The fringes of these shawls, in Scotland, are made by hand. The idea suggested itself to one of the enterprising mill owners at Lawrence, that if a machine could be invented for weaving and knotting the fringes, the shawl could be made at so light a cost, as to enable the manufacturer to undersell the Scotch in our market. An ingenious mechanic—a carpenter we are told—with some aid from his son, hit upon an invention for making the fringes by machinery; and to this circumtance the great prosperity of the manufacture is owing.—[Exchange.

[Some mistake in the above. The foreign shawls could be sold much cheaper only for the duty; the quarrel between two New York importing houses in this city last year, brought out facts which warrant this conclusion.

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TO CORRESPONDENTS.

J. H. N., of N. Y.—We have no doubt you will be able to obtain a patent for your improved Writing Desk. The contrivance seems altogether different from any other we have ever noticed; upon the receipt of a small model the papers can be prepared in a few days. As to its probable value we cannot advise.

N. M., of N. Y.—The application of the screw to a particular purpose could not be patented. Your arrangement is good, but would not be considered an invention in the eyes of the law, and the rules which govern the action of the Patent Office.

C. & B., of N. Y.—The Bridge will be published next week.

J.H., of Texas.—We do not disapprove of attempts to improve paddle wheels with movable floats, but we condemn some supposed improvements as being decidedly erroneous. The Morgan Wheel (movable floats) is superior for river navigation or comparative smooth sailing, but we believe movable floats to be impracticable for marine vessels.

W. G. W., of Mass.—We shall use yours next week.

W. S, P., of Tenn.—Such a printing press as you describe would be valuable, we should think, if made to operate well.

S. G., of La.—Your favor of the 5th inst. is received: we are glad to learn that our notices have benefitted all interested in the subject; we must, however, decline a repetition of them. You will see, upon reflection, that the character of our journal does not admit of it to the extent practiced by daily papers.

C. E., of Pa.—The clause in the English statute, to which you refer, was enacted by Royal assent, August 6th, 1844. It relates to extensions of patents; you have a correct understanding of it, as we comprehend its meaning.

B., of Paris.—We are much obliged to you for the Scientific Memoranda, and will make good use of it for the benefit of the public.

L. R. P., of Me.—We do not think it possible that we can add anything more to what we have said upon the subject. The question is a mixed one—a dynamical one—and you look upon it in the light of a statical one only. It is as great an error to discuss a dynamical question upon the principle of statical pressure, as to discuss a mechanical problem by the rules of grammar. What we have said has been honestly spoken, but no man can convince another against his settled conviction. You will see our opinion about the lever in another column; it will be sufficiently understood so as to apply to all questions of leverage and pressure, and thus we leave the question.

W. P. E., of D. C.—We published the description of the building some numbers back, and shall furnish additional particulars when we give a perspective of it.

G. H R., of Ill.—The engine you refer to was sold some time since. $10 would be the cost of such an engraving as you would like.

H. & Z, of Ohio.—Sliding doors are common on the furnaces of engine boilers, but we have never seen them applied to a stove. We do not believe a patent could be obtained.

G. W., of Ohio.—A chain of buckets revolving over two rollers is all of 3,000 years old.

M. C. M., of N. Y.—The principle of applying the screw to the hand-car appears to be feasible, but we do not see a point on which we could base a claim for a patent.

J. C. R., of New York.—The question of the hole being bored diametrically through the earth, and a cannon ball dropped into the same might lead, as it has done to a great waste of time, and it certainly would be an unprofitable discussion. We aim at the attainment of practical results.

C. McC. of N.Y.RR—We had no control over the cut of the engine. We have seen those to which you refer; they are built by R. & K. We shall use your information.

A. L. U., of Mass.—You should not hide your name if you want information from us; at any rate we cannot give it. Such a machine as you speak of would doubtless be worth something.

S. S., of Pa.—There is nothing new in either the mattress or the revolving cannon. The same contrivances have been shown to us before; the mattress, we believe, is well known, a specimen of the same was deposited in our office more than three years ago.

J. M. B., of Placerville, Cal.—Your letter of the 26th of Feb., enclosing the "golden quartz bosom-pin," was handed us by Mr. Bartlett. We return our thanks for this token of your esteem, and hope you may find placer upon placer as a reward for your untiring ambition. In regard to the "Washer," if you wish a patent for it, a small model must be furnished, together with duplicate drawings and a specification. If you could prepare a rough sketch and description of it, and forward it to this office, we could have a model made much cheaper than at your place. Messrs. Beach, Wells & Co., of Sacramento, will attend to the forwarding of the funds.

W. H. R., of Ohio.—We have never received any money from the editor of the Democrat, to be applied to your credit.

A. C., of Mass.—The World's Fair, at London, will be kept open until the 1st or 15th of Oct.

Jos. Wright, of ——.—Your letter, dated April 17, enclosing $1, has been received, but as you neglected to state where you have received your paper formerly, or where you wish it sent in future, or where you reside now, we can get no clue to your whereabouts.

Dr. G., of N. S.—We have received yours, and will give it attention.

C. H. S., of N. Y.—Your padlock is new. The essays which you speak of could not be published by us during this volume, as we have laid out our course for all the articles continued from week to week, already We should have been happy to have given you a different answer.

W. P., of Mich.—You must try and get some friend with whom you are acquainted, to assist you in your experiments. Let them be on a small scale first, and let them be carefully performed.

G. P., of Md.—We do not remember to have ever seen or heard of such an arrangement as you speak of, and think it probable that you might obtain a patent. We do not know what the cells were to have been filled with. The inventor did not mention this to us.

M. M. & Co., of Geo.—We are unable to say who makes the rattan chair seats. The Alcott Lathe is a valuable one for your purpose.

U. B, of Mass.—Bottomley's improvement in Looms was patented in England, Feb. 22nd, 1819. Vide Patent Journal, page 235. It possesses some novel features, but of its practical success we are unable to speak.

J. P., of Tenn.—We have just received yours, and will examine it next week.—D. G., of Vt.—We do not see how you are to obtain the advantages in a water wheel by the draft you have sent us. The curved bucket, to our view, has superior advantages.

Money received on account of Patent Office business since April 16:—

B. J. B., of N. Y.; $30; W. & N., of N. Y., $30; A. W. J., of Del., $20; M. M. I., of Ga., $55; W. C. B., of L. I., $20; J. H., of Ill., $25; H. B., of Ct., $28; W. H. H., of N. Y; $20; C. W., of Mass., $20; R. R. F., of N. Y, $17; J. M. L., of L. I., $20; J. W. W., of Wis., $5

Specifications and drawings of inventions belonging to parties with the following initials, have been forwarded to the Patent Office since April 16:

R. R. F. & Co, of N. Y.; D. W., of N .Y.; J. Y., of Mass.

Notice to Subscribers of Duggan's Work on Bridges.

Owing to the decease of Mr. George Duggan, the subscribers to the celebrated work on bridges are informed that the two unpublished numbers of that work will not probably be issued. Those who have sent the full amount of subscription to this office for the work, are informed that the balance due them for the two numbers not furnished will be remitted to them by mail, ($1,50 each), or placed to their credit on subscription to the Scientific American, as they may desire.

We exceedingly regret the death of Mr. Duggan who was an excellent bridge architect, and we fear none other will finish the work that he had commenced and so ably conducted.

New Edition of the Patent Laws.

We have just issued another edition of the American Patent Laws, which was delayed until after the adjournment of the last Congress, on account of an expected modification in them. The pamphlet contains not only the laws but all information touching the rules and regulations of the Patent Office We shall continue to furnish them for 12 1-2 cts. per copy.

Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years can obtain a copy by addressing a letter to this office; stating the name of the patentee, and enclosing one dollar as fee for copying.

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American and Foreign Patent Agency.

IMPORTANT TO INVENTORS.—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express or any other convenient medium. They should not be over 1 foot square in size, if possible.

Branches of our Agency have been established in London, under the charge of Messrs. Barlow, Payne & Parken, celebrated Attornies, and Editors of the "Patent Journal;" also in Paris, France, under the charge of M. Gardissal, Editor of the "Brevet d'Invention." We flatter ourselves that the facilities we possess for securing patents in all countries where the right is recognized, are not equalled by any other American house. MUNN & CO.,
128 Fulton street, New York.

HOVEY'S PATENT STRAW CUTTER.—Wm. Hovey, of Worcester, Mass., has opened a wareroom for the sale of his Cutters, at 60 Courtland st., New York. WM. HOVEY, Patentee. 32 *4

SCRANTON & PARSHLEY, New Haven, Conn., will have finished by the 10th of May, 12 Slide Lathes, with 8, 10, and 12 feet beads; these lathes swing 21 in, have back and screw gear, have over-head reversing pullies, all hung in a cast-iron frame, with drill, chuck, centre, and follow rest. S. & P. will also have 12 upright drill presses ready to ship at the same time; they have also constantly on hand 5 and 9 feet power planers, the same as heretofore advertised in this paper. Hand Lathes and slide lathes constantly on hand. Cuts, with full descriptions and prices, of the above tools can be had by addressing as above (post-paid.)

PATENT CAR AXLE LATHE.—I am now manufacturing and have for sale the above lathes: they will turn and finish six sets per day, weight 5,000 lbs., price $600. I have also for sale my Patent Engine Screw Lathe, for turning and chucking tapers, cutting screws, and all kinds of common job work; weight 1500 lbs., price $225, if the above lathes do not give good satisfaction, the money will be refunded on the return of the lathe, if within six months. J. D. WHITE,
32 13* Hartford, Conn.

IMPORTANT TO CARRIAGE MAKERS and Dealers.—Sprout's Patent Combined Carriage Springs are manufactured and sold by the Union Co., Bridgeport, Conn.; Wm. Wright & Co., Newark, N. J., and John B. Bell, Pittsburgh Pa. Proprietors—Sprout, Burrows & Co., Hughsville, Lycoming Co., Pa. For further description see circulars, which may be obtained at the above place. 32 2*

STEAM ENGINES AND BOILER—Several Steam Engines, now finishing, from five to fourteen horse-power; also one of 15 and one of 25. Having just enlarged my manufactory, I am now prepared to make all sorts, from 2 to 50 horse-power, of the best materials in all their parts. One second-hand engine of 8 horse-power, two cylinders, in good order, for sale, with new boiler, $575. Also Galvanized Chain for chain-pumps. AARON KILBORN.
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WANTED—The services of two sober industrious men, thoroughly acquainted with the manufacture of pails in all its departments. None but competent persons need apply. Address (post-paid) HENRY S. TEW, Haddel's Point, S. C. 32 2*

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MUNN & CO.,
3oew‡ Office of the Scientific American.

STEAM ENGINES FOR SALE.—A one, two, three, and four horse power engine, of simple construction and substantially made; they may be had separately or with boilers, and can be shipped without taking in pieces to pack. I am also prepared to do all kinds of light machinery work on reasonable terms. Orders, post-paid, promptly attended to. Address CONRAD SIMON, Louisville, Ky. 30 2*

LAWRENCE SCIENTIFIC SCHOOL.—Harvard University, Cambridge, Mass.—Special Students attend daily, from 9 o'clock, A.M., till 5 o'clock, P. M., in the laboratories, and under the direction of the following Professors:—Louis Agassiz, Professor of Geology and Zoology; Jeffries Wyman, M. D., Professor of Comparative Anatomy; Henry L. Eustis, A. M., Professor of Engineering and Physiology; Eben Norton Horsford, A. M., Professor of Chemistry. Instruction is also given by Prof. Pierce in Mathematics; Prof. Lovering, in Physics, and the Messrs. Bond at the Astronomical Observatory. All lectures delivered to under-graduates of the College are free to members of the Scientific School. For further information apply to E. N. HORSFORD,
29 6* Dean of the Faculty.

LATHES FOR BROOM HANDLES, Etc. We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles, and Broom Handles.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch, and work as smoothly as on a straight line, and does excellent work. Sold without frames for the low price of $25—boxed and shipped, with directions for setting up. Address, (post paid) MUNN & CO.,
At this Office.

WOODWORTH'S PATENT PLANING MACHINES: 1851 TO 1856.—Ninety-nine hundredths of all the planed lumber used in our large cities and towns continues to be dressed with Woodworth's machines. Persons holding licenses from the subscriber are protected by him against infringement on their rights. For rights in the unoccupied counties and towns of New York and Northern Pennsylvania, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 28 7eow*

BOGARDUS'S CELEBRATED HORSE-POWER.—Cranks, balance wheels, pitmans or noddle-heads, stirrups, feed hands, saw gate slides and rods, wrag wheels, carriage cogs, dogs, gudgeons, mill bars, saw gummers, and Hotchkiss wheels and shafting for saw mills; spindles, bales, drivers, hoisting screws and bales, regulating screws, mill pecks, bushes, smut machines, shafting and gearing iron water wheels for flouring mills; fly or roll bars and plates, paper cutters, Kay's callendaring apparatus for continuous sheets for paper mills; screws for lathes and presses, jack screws, wrought and cast iron shafting, pullies and hangers, heavy forging, cotton gin gear, screw-bolts and nuts, slip gudgeons are manufactured at the Speedwell Iron Works, Morris Town, N. J. Office in New York, No. 9 Gold st., with Logan, Vail & Co. P. S. Belting and bolting cloths supplied to order. GEO. VAIL & CO.
28 1amtf

A CARD.—The undersigned beg leave to draw the attention of architects, engineers, machinists, opticians, watchmakers, jewellers, and manufacturers of all kinds of instruments, to his new and extensive assortment of fine English (Stubs) and Swiss Files and Tools, also his imported and own manufactured Mathematical Drawing Instruments of Swiss and English style, which he offers at very reasonable prices. Orders for any kind of instruments will be promptly executed by F. A. SIBENMANN, Importer of Watchmakers' and Jewellers' Files and Tools, and manufacturer of Mathematical Instruments, 154 Fulton st. 29 3m*

WILLIAM W. HUBBELL—Attorney and Counsellor at Law, and Solicitor in Equity, Philadelphia, Penn.

PORTABLE GRIST MILLS—Of the best construction, at the following prices:—12 inch hand mill, $40; 16 in. do., $45; 18 in. Burr stone, power, $90; 24 inch do. $100; 30 in. do., $150. $15 additional for the gearing of the 18 and 24 inch; the 12 and 16 inch are geared with cranks. The 30 inch is driven from the spindle; 18 in., 2 horse power, will grind 4 bushels per hour; 24 in., 3 horse, 5 bushels; 30 in., 4 horse, from 6 to 8 bushels; speed, 300 revolutions per minute. Address (post-paid) to
MUNN & CO., at this Office.

MACHINES FOR CUTTING SHINGLES. The extraordinary success of Wood's Patent Shingle Machine, under every circumstance where it has been tried, fully establishes its superiority over any other machine for the purpose ever yet offered to the public. It received the first premium at the last Fair of the American Institute—where its operation was witnessed by hundreds. A few State rights remain unsold. Patented January 8th, 1850,—13 years more to run. Terms made easy to the purchaser. Address, (post-paid) JAMES D. JOHNSON, Redding Ridge, Conn., or Wm. WOOD, Westport, Conn.. All letters will be promptly attended to. 10tf

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TWO PAINTERS AND OTHERS.—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil Stove Polish. The Drier, improves in quality, by age—is adapted to all kinds of paints, and also to Printers' inks and colors. The above articles are compounded upon known chemical laws, and are submitted to the public without further comment. Manufactured and sold wholesale and retail at 114 John st., New York, and Flushing, L. I., N. Y., by
QUARTERMAN & SON,
22tf Painters and Chemists

MACHINERY.—S. C. HILLS, No. 12 Platt Street, N. Y., dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills Kase's, Von Schmidt's, and other Pumps, Johnson's Shingle machines, Woodworth's, Daniel's and Law's Planing machines Dick's Presses, Punches, and Shears; Mortice and Tennoning Machines, Belting, machinery oil; Beal's patent Cob and Corn Mills; Burr Mill, and Grindstones, Lead and Iron Pipe, &c. Letters to be noticed must be post paid. 26tf

BAILEY'S SELF-CENTERING LATHE, for turning Broom and other handles, swelled work, chair spindles, &c.; warranted to turn out twice the work of any other lathe known—doing in a first rate manner 2000 broom handles and 4000 chair spindles per day, and other work in proportion. Orders, post-paid, may be forwarded to L. A. SPALDING, Lockport, N. Y. 21tf

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RAILROAD CAR MANUFACTORY.—TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of Railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty and good taste, as well as strength and durability, we are determined our work shall be unsurpassed. JOHN R. TRACY,
16tf. THOMAS J. FALES.

MANUFACTURERS' FINDINGS and Leather Binding.—The subscriber is prepared to offer a large assortment of manufacturers' Findings for Cotton and Woollen Factories, viz., bobbins, reeds, harness, shuttles, temples, rockers, harness twines varnish, roller cloth, card clothing, card stripper and clamps, calf and sheep roller, leather, lace, and picker string, potato & wheat starch, oils, &c. Leather Banding, of all widths, made in a superior manner from best oak tanned leather, rivetted and cemented.
25 3m P. A. LEONARD, 116 Pearl st.

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1 1-4 to 7 inches in diameter. The only Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine, and other Steam Engine Boilers.
THOS. PROSSER & SON, Patentees,
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LEONARD'S MACHINERY DEPOT, 116 Pearl st., N. Y.—The subscriber has removed from 66 Beaver st. to the large store, 116 Pearl st., and is now prepared to offer a great variety of Machinists' Tools, viz., engines and hand lathes, iron planing and vertical drilling machines, cutting engines, slotting machines, universal chucks, &c. Carpenters' Tools—mortising and tennoning machines, wood planing machines, &c. Cotton Gins, hand and power, Carver Washburn & Co.'s Patent. Steam Engines and Boilers, from 5 to 100 horse power. Mill Gearing, wrought iron shafting and castings made to order. Particular attention paid to the packing shipping, and insurance, when requested, of all machinery ordered through me. P. A. LEONARD.
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MATAPAN MACHINE WORKS—Corner of Second and A sts., South Boston. The undersigned have recently enlarged their business and are now prepared to offer a great variety of Machinists' Tools, viz., Engine and Hand Lathes, iron Planing and Vertical Drilling Machines, Cutting Engines, Slotting Machines, and Universal Chucks; also Mill Gearing and Wrought Iron Shafting made to order.
22 12* GEO. HEPWORTH & SON.

SASH AND BLIND MACHINE—Patented by Jesse Leavens, Springfield, Mass. The machine planes, molds, mortises, bores, tennons, copes, franks, outs off, rips up the stuff, planes the blinds, shades, and sets out the sash. The machine is 4 by 5 feet, weighs 800 lbs., requires two horse-power to drive it, and cost $300 cash—extra charge for the right to use. Shop, town, county, and State rights for sale. Orders from abroad will be promptly attended to by addressing JESSE LEAVENS, Palmer Depot, Mass.
27 8*

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Scientific Museum.

Scientific Memoranda.

Births, Marriages and Deaths in Boston.—A meeting of the American Statistical Association was held on the 9th instant, in Boston. Several communications were made on different subjects. One related to the births, marriages and deaths of Boston for 1850, as predicated on the valuable report of the Registrar, Artemas Limmonds, Esq.,

As to births, they were 5,279, being some over the ratio, as 1 to 26 of the whole population, estimated at 138,000. Of such the births were 2,681 males and 2,598 females, showing the general excess of the former sex. Of these 53 were twins, making of course, 106 children. The number of parents to the 5,279 children, born the last year, was 10,452, of whom only 3,445 were natives of New England, and 241 of other parts of the United States. Such a computation makes the rest, who were foreigners, 6,660, of whom 5,526 were Irish. It gives the inference, that the foreign parents were to the American, as nearly two to one! A fact of this kind calls for the exercise of that wisdom which makes suitable provision for the exigency, so that, through education and government, the elements of foreign bias and character may not overmatch those of New England, but be brought under their control.

Natural History.—A number of beautiful specimens of rare and curious birds and animals, collected by Captain Stansbury, of the Topographical Engineers, during his stay in the Rocky Mountains and at the Great Salt Lake, have been skilfully stuffed and prepared at Washington city, so as to restore their original shape and appearance. They have been deposited in the National Gallery, in the Patent Office Building. Conspicuous in the collection is a Rocky Mountain Sheep or big horn, the Wolverine, a cross-fox, and several other animals which are peculiar to the far West.

To Prevent Sneezing.—A correspondent of the London Medical Gaz., says, that to close the nostril with the thumb and finger during expiration, leaving them free during inspiration will relieve a fit of coughing in a short time. In addition to the above, we state from personal knowledge, that to press the finger on the upper lip just below the nose will make the severest premonitory symtoms of a sneeze pass off harmlessly. We have found the remedy useful many a time in creeping on game in the woods. —[Ex.

New Paper Mark.—A novel kind of paper is stated to have been produced at the mills of Mr. T.H. Saunders, of Darenth, in Kent, Eng. It contains a water marked portrait of the Queen, contrived, not as the ordinary water mark in mere outline hitherto used in bank note and other paper, but so as to give the gradation of light and shade of an Indian-ink drawing, such as is seen in the porcelain pictures introduced from Germany. It is the invention of Mr. Oldham, the engineer of the Bank of England.

A French officer has invented a method of applying lever power to machinery without any intermission of the action of the lever. The invention has been put to the test at Saumer, France and has been entirely successful. —[Exchange.

[Wonderful, what is a capstan turned with a hand-spike, eh?

The new monster steamer, now being built at Bristol, for the West India Packet Company, is eight feet longer than the Great Britain. She is to be called the Demerara.

Durability of Wood.

The piles under the London Bridge have been driven 500 years, and upon examining them in 1846 they were found to be little decayed. They are principally elm. Old Savoy Place, in the city of London, was built 950 years ago, and the wooden piles consisting of oak, elm, beech, and chestnut were found upon recent examination to be perfectly sound. Of the durability of timber in a wet state, the piles of the bridges built by Emperor Trajan, over the Danube, afford a striking example. One of these piles was taken up, and found to be petrified to the depth of ¾ of an inch; but the rest of the wood was not different from its former state, though it had been driven 1,600 years.

For the Scientific American.

Hydraulics.

(Continued from page 248.)

Re-action Water Wheels.—The principle of water acting by gravitation on the overshot wheel, is so well known that we have said all that may be considered necessary on the subject without going into very long details, which can be found in almost every work on the subject, (Smeaton's, Bank's, and Robinson's are good works). The ventilated buckets, as not being universally applied among us, we have described, and those who wish to see the finest specimen of a suspension water-wheel in our country, have but to visit the Troy Nail Works, Renselaer Co., N. Y.

The subject of Re-action Wheels is more interesting than any other, because there are 20 of such wheels used in America for one overshot or breast wheel, we suppose. The subject has been much obscured for want of practical information. Among the first improvers, if not the first, of such wheels, were Messrs. Parker, of Ohio, two brothers, who obtained a patent in 1829. One of them is now dead. There has been a great amount of litigation about Parkers' wheels, and we did not wish to prejudge facts by presenting numerous documents sent to us on both sides of the question. When a case is in law, we desire to be silent until it is decided. The Parker patent has expired, and we can now say, without prejudging any party, that no man, perhaps, in this country, nor any other, understands the principles of what are termed Re-action Wheels better than Zebulon Parker; and the reason is obvious, he has made them a subject of study and practical experiment for thirty years, and being a practical and theoretical man, enthusiastic in the pursuit of this branch of mechanical science, his knowledge must be held to be of the first importance. We have now before us a manuscript of Mr. Parker (presented to the Franklin Institute in 1841, but never published) exhibiting his views of the theoretic action of water by *centrefuge*. This MS. is now revised, along with a great deal of other information, experiments, and illustrations, by Mr. Parker, which will be found exceedingly valuable, and to be obtained no where else in any printed work.

The action denominated "Percussion and Re-action," intimates that these forces are joined in propelling the wheel. The name was adopted before the nature of the action of the water was fully understood, and is not strictly expressive of its nature.

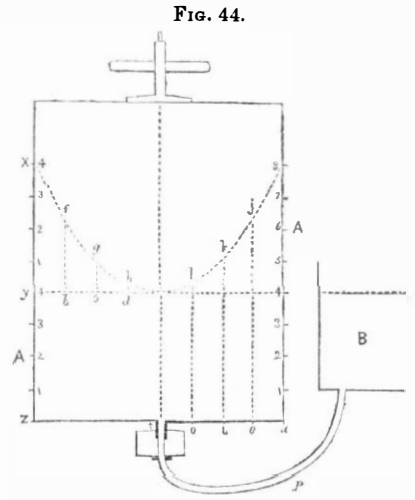
When the wheel is running at a slower rate than the water within it, both percussion [or dynamical pressure] and centrifuge unite their forces with that of the re-action of jets from the issues. But it is obvious that the simple percussion must cease as the wheel acquires a velocity greater than the water within it. In this case, however, the amount of forces tending to propel the wheel are not lessened, because as the percussion diminishes an equivalent is produced by the centrifuge; the force from re-action remaining the same.

That centrifuge in this application is an equivalent for percussion will be made manifest by the following proposition, and the diagram of the experiment illustrating it.

The centrifugal force or outward pressure of a quantity of water, revolving within a cylinder of any diameter, is equal to the pressure of a head of water, which will, by the law of spouting fluids, produce a velocity equal to the circular velocity within the cylinders.

Let A A be a cylinder of any diameter, having its axis vertical; Let the pivot, t, be a tube communicating through the pipe, P, with a reservoir, B; let the surface of the reservoir be, say 4 feet higher than the bottom of the cylinder. Now if the water in the cylinder has no circular motion, its surface will be level at 4 4, and if an orifice be made at the bottom, at z or a, the water will discharge under a pressure of 4 feet, or with a velocity of 16 feet per second. But if the cylinder and the water within it be made to revolve, so that the inner surface of the cylinder and the water in contact with it, have a circular velocity of 16 feet per second, the centrifuge of the water will cause it to rise at the cylinder and sink at the axis, and to fill the part of the cavity which is lower than the surface of the reservoir, the water will flow through the pipe until an equilibrium is produced. This will be when the water in contact with the cylinder has risen to the height of 4 feet above the surface of the reservoir, and to the same height at the axis. In this condition an orifice at y,

Fig. 44.



the height of the surface of the reservoir, will discharge under a pressure of 4 feet, or with 16 feet per second velocity. And any proportional height, between y and x, will have the same outward pressure, and would discharge with the same velocity that would take place between z and y without the circular motion. And any point in the concave surface of the water, f g h, will be at such a height that a body must fall to acquire a velocity equal to the circular velocity of that point. And an orifice made at a will now discharge under a pressure of a, 8, or z, y,$+y$, x (=8 feet=22·62 feet per second); at e, under e, i, or z, $y+b\,f$; at i, under i k, or z, $y+c$, g, &c.

In applying these principles to the wheel, it is evident that the pressure of z y, or the head and fall is required to project the water into the wheel; and the equal outward pressure from the centrifuge y x, is employed in producing an equal relative counter projection from the wheel, which counter projection, by its re-action, is a constant force in propelling the wheel. And as the wheel's velocity at its verge, when running at its proper speed, will have a velocity equal to the relative velocity of the water through the issues in a contrary direction, the water at the instant of its discharge, has no velocity except the radial component of its divergency from a tangent to the verge of the wheel; which is necessary to give place to the successive flow through the wheel.

Although this is undoubtedly the true theory of the action of the water in this improvement, it is not to be expected that the whole power of the water can be communicated to the wheel, on account of circumstances operating as drawbacks, the principal of which is the unavoidable obliquity of the projections from tangents to the outer circle of the wheel, and the friction caused by the curves, roughness, and capillary attraction in the inlets and in the buckets and outer surface of the wheel.

It will be observed that what is here assumed and proved to be true, goes to controvert the long received position, that "water, being a non-elastic substance, is incapable, by impinging against a moving body, of communicating more than half its force."

Steamship "Atlantic" Tribute to American Nautical Skill.

The "Liverpool Chronicle" says:—"This fine vessel, whose machinery, it will be remembered, got damaged on her voyage from Liverpool in January, has been removed within the last few days into the Huskisson Graving dock, where she is now dry. She has been minutely inspected by a number of scientific persons well versed in ship-building, all of whom report her to be in a most perfect and satisfactory state. Notwithstanding the fearful weather she experienced, her copper is as smooth throughout as the day it was put on; a close examination does not discover a wrinkle, much less any signs of straining, in any part of her huge but beautifully symmetrical structure. To the uninitiated who view her sharp, wedge-like stem, it appears wonderful how with this can be combined the vast breadth that covers you like a shed when you are under her bottom amidship; whilst her lines running aft are so beautifully drawn to her stern, as to leave the water very gracefully.

On Thursday the ship was inspected by some of those acute gentlemen upon whose opinion the underwriters form their judgement, and also price of insurance, and we understand that the result was so satisfactory that a large saving will be effected in this item when the noble vessel is again ready for sea, which, we understand, will be in June next.

Captain West is taking advantage of the repair of the machinery to erect a most spacious and elegant dining saloon upon deck.

LITERARY NOTICES.

"Rebels and Tories or the Blood of the Mohawk," —a Revolutionary Legend, by Lawrence Labree: New York; Dewitt & Davenport, publishers; price 50 cts. We have not perused this work of Mr. Labree, but we are glad that he has seen fit to found the circumstances in America; authors generally overlook our own country and import all their materials from foreign countries, out of which fictitious works are made, something we do not think wholly necessary.

Peterson's Ladies' National Magazine, for May, has been sent us by Dewitt & Davenport, Tribune Buildings. It is, as usual, well illustrated, and contains contributions of merit.

The Western Horticultural Review: No. 7, Dr. J. A. Warder, Editor, Cincinnati: $3 per annum. It contains valuable information for all those engaged in the branch to which its columns are devoted.

"The Transcript," an interesting and well-conducted newspaper, published in Portland, Me., by Gould & Elwell, has just entered upon its xvth volume. It is carefully edited, and merits a large patronage.

The May number of "The Scalpel," has been sent us by the editor. It contains a common-sense and practical article on Domestic Architecture, which is worth the attention of denizens of large cities. Dr. Dixon, the editor, works boldly in the cause of medical reform, and having no fear of man before his eyes we may look for good results from his able pen. The Scalpel is a peculiar publication, and contrasts singularly with many of the serials of the present day, on account of its originality, which, in these times, is really refreshing. This number throughout is excellent. Published quarterly at $1. New York: E. H. Dixon.

The Practical Receipt Book.—This is the title of a very neat book, published by Lindsay & Blakiston, Philadelphia. We have examined a great number of the receipts, some of which are excellent and worth the whole price of the book. There are others, however, which are not of much value.

MECHANICS

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The Publishers of the SCIENTIFIC AMERICAN respectfully give notice that the Sixth Volume of this valuable journal, commenced on the 21st of September last. The character of the Scientific American is too well known throughout the country to require a detailed account of the various subjects discussed through its columns.

It enjoys a more extensive and influential circulation than any other journal of its class in America.

It is published weekly, as heretofore, in *Quarto Form*, on fine paper, affording, at the end of the year, an *ILLUSTRATED ENCYCLOPEDIA*, of over FOUR HUNDRED PAGES, with an Index, and from FIVE to SIX HUNDRED *ORIGINAL ENGRAVINGS*, described by letters of reference; besides a vast amount of practical information concerning the progress of SCIENTIFIC and MECHANICAL IMPROVEMENTS, CHEMISTRY, CIVIL ENGINEERING, MANUFACTURING in its various branches, ARCHITECTURE, MASONRY, BOTANY,—in short, it embraces the entire range of the Arts and Sciences.

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10 copies for 6 mos., $8 | 15 copies for 12 mos., $22
10 " 12 " $15 | 20 " 12 " $28

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PREMIUM.

Any person sending us three subscribers will be entitled to a copy of the "History of Propellers and Steam Navigation," re-published in book form—having first appeared in a series of articles published in the fifth Volume of the Scientific American. It is one of the most complete works upon the subject ever issued, and contains about ninety engravings—price 75 cents.

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